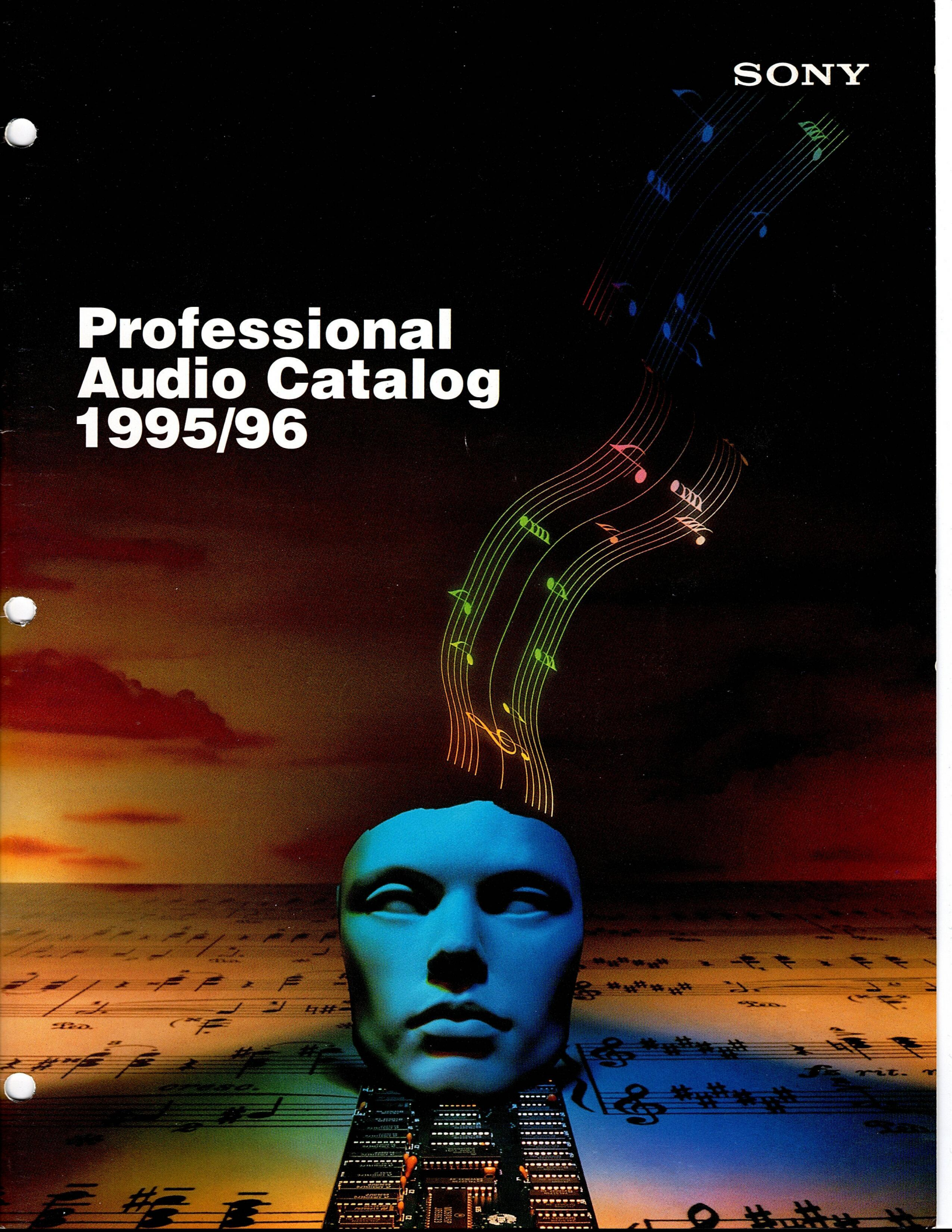
SONY

Professional Audio Catalog 1995/96



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SECTION 1

Digital Multitrack Recorders

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DIGITAL AUDIO STATIONARY HEAD
DASH

Digital Audio Multi-Channel Recorder

PCM-3348

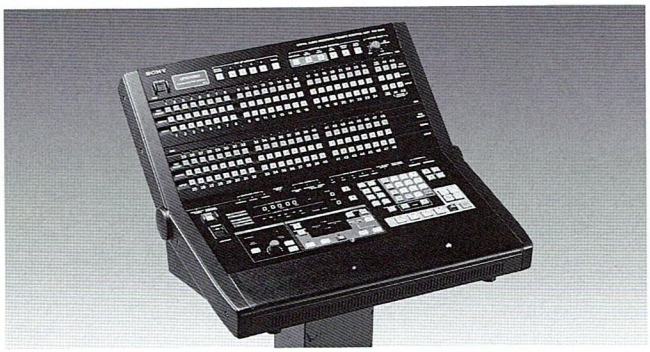
- 1/2-inch DASH recorder with 48 digital audio tracks, 2 cue tracks and one track each for CTL and time code signals
- Compatible with PCM-3324S/3324A/3324 in recording and playback of digital audio tracks 1 through 24
- 2 times oversampling digital filtering for both A/D and D/A converters
- Wide interfacing — balanced analog multi I/O and three types of digital I/O (AES/EBU, SDIF-2 balanced/unbalanced)
- Comprehensive microprocessor-controlled servo system, unique design and excellent mechanics for fast and stable transport
- Built-in time code generator/reader capable of handling SMPTE drop frame/non-drop frame, EBU and film time codes
- 48kHz, 44.1kHz or 44.056kHz sampling frequency selectable
- Advanced digital/analog output function enables pre-delay adjustment in 1-sample steps to compensate for signal processing delay in external equipment
- Approx. 20 seconds of digital audio data can be stored in sound memory and re-recorded back onto tape at any position
- Real-time digital ping pong

Supplied Accessories

AC power cable (x 2)
Remote cable (10m)
RH-10DA empty reel (10-inch)
Multi-connector plug (27-pin male, x 6)
Multi-connector plug (27-pin female, x 6)
RM-3348 remote control unit with stand

Remote Control Unit for PCM-3348 (Supplied)

RM-3348



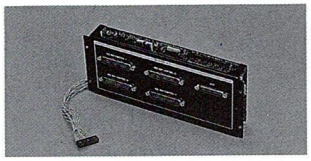
- Provides control over all functions of PCM-3348 including variable speed control, digital ping pong, sound memory,memory back up for three days, repro mute, synchronized operation of two or three PCM-3348 or PCM-3324S/3324A/3324 machines
- Dimensions: 526(W) x 1068(H) x 536(D)mm (20 3/4 x 42 1/8 x 21 1/8 inches) w/stand
- Weight: 28kg (61 lb 12 oz) w/stand
- Power requirements: AC 100 to 120V/220 to 240V, 50/60Hz
- Power consumption: 42W

Optional Accessories

DABK-3340

Remote Interface Board for PCM-3348

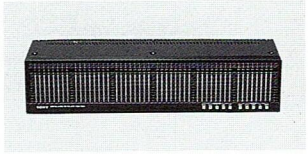
- Interfaces PCM-3348 directly with a mixing console through SRIF-4



DMU-3048

Digital Meter Unit for PCM-3348

- Dimensions: 700(W) x 152(H) x 200(D)mm (27 3/4 x 6 x 7 7/8 inches)
- Weight: 10kg (22 lb 1 oz) w/o cable
- Power requirements: AC 100 to 120V/220 to 240V, 50/60Hz
- Power consumption: 48W



NOTE: For tapes and accessories used in common with PCM-3324S, *refer to page 2-3.*

Digital Audio Multi-Channel Recorder

PCM-3324S

- Modular 24-channel digital multitrack, configurable to individual user requirements:
  —nine option boards
  —two alternative types of remote control units
- Fully compatible with all 24 and 48-track DASH machines
- Extremely high-speed pinch rollerless transport
- Pre-striping and Erasing at 4 times real speed; including Control Track and Time Code
- Compact design and low-power consumption
- Standard features include:
  — 1-bit A/D and 18-bit D/A technology
  — V-clock and vari-sync facilities
  — 10-inch, 12.5-inch and 14-inch reel capacity
  —Automatic alignment under CPU control
  —Multi-format time code generator
  —Advance output for digital mixing consoles
  —48kHz, 44.1kHz and 44.056kHz sampling frequencies

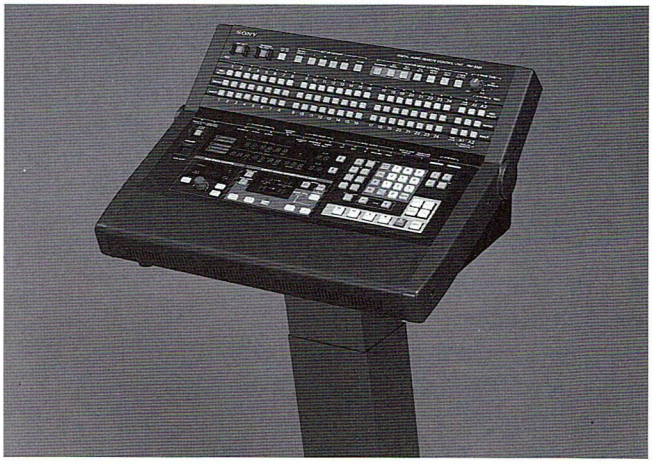
Supplied Accessories

10-inch reel
AC power code
Extended board

System Components

Remote Control Unit

RM-3324



- Full function Remote Control Unit
- Stand included
- Built-in machine to machine synchronizer with dedicated electronic editing mode
- Cross fade time display
- Multiple digital ping pong
- Requires DABK-3323 option to be fitted to PCM-3324S
- Dimensions: Unit
  472(W) X 399(H) x 187(D)mm
  (18 5/8 x 15 3/4 x 7 3/8 inches)
  Stand
  525(W) x 600(H) x 536(D)mm
  (20 3/4 x 23 5/8 x 21 1/8 inches)
- Weight: Unit; Approx. 11kg (24 lb 4 oz)
  Stand; Approx. 14.5kg (31 lb 15 oz)
- Power requirements: AC 100 to 240V, 50/60Hz
- Power consumption: 30W

Supplied Accessories

AC power cable
50-pin remote cable

Remote Control Unit

RM-3324S

- Simple Remote Control Unit
- Optional stand
- Power supplied via remote control cable
- Required DABK-3322 option to be fitted to PCM-3324S
- Dimensions: 472(W) x 266(H) x 78(D)mm (18 5/8 x 10 1/2 x 3 1/8 inches)
- Weight: 3kg (6 lb 10 oz)
- Power requirements: Supplied from PCM-3324S

Supplied Accessory

DIN 8-pin remote cable

Optional Accessories

SU-15 stand
SU-224 stand

PCM-3324S OPTIONS

Optional boards

All PCM-3324S board options are retrofittable, allowing a machine to be user reconfigured in a few minutes.

DABK-3321
Remote Control Interface
- Parallel transport control with tallies
- Includes external phase and speed inputs from external synchronizer

DABK-3322
Remote Control Interface
- Serial interface boards for use with simple Remote Control Unit RM-3324S
- Includes power connection for RM-3324S

Optional Accessory

RM-KIT3322 9-pin RS-422 Serial interface protocol

DABK-3323
Remote Control Interface
- Serial interface board for full Remote Control Unit RM-3324
- Includes sound memory external trigger input

DABK-3324
Remote Control Interface
- Parallel interface for remote control of Record/Ready function from mixing console
- Includes time code track and analog cue tracks 1 and 2

DABK-3325
Digital I/O
- 24-channel SDIF-2 digital input/output board

DABK-3326
Digital I/O
- 2-channel SDIF-2 digital input/output board
- Input and output channels can be assigned from an RM-3324 or RM-3324S
- Up to four boards can be installed

DABK-3327
Digital I/O
- 2-channel AES/EBU digital input/output board
- Input and output channels can be assigned from an RM-3324 or RM-3324S
- Up to four boards can be installed

DABK-3328
Time Code Reader
- Time code chase synchronizer
- High-speed time code reader
- Time code generator

DABK-3329
Sound Memory
- 20-second stereo sampling memory
- Editing of start and end points
- External trigger functions
- Reverse playback
- For use with RM-3324 only

DABK-3330
MADI Option Board for PCM-3324S
- Allows MADI format digital audio connection with MADI equipped digital mixing consoles.

DAH-24R
Confidence Monitor Head
- Allows confidence monitoring with blank or pre-striped tape

DABK-3024S
Digital Meter Unit for PCM-3324S
- Mounts directly on RM-3324 or RM-3324S remote unit.

Optional Accessories

D-1/2-2920
Digital Master Tape
(65 min at 44.1kHz)

D-1/2-1460
Digital Master Tape
(32 min at 44.1kHz)

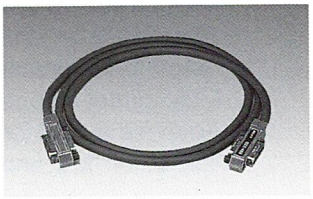
RH-14DA
Empty Reel for D-1/2-2920

RH-10DA
Empty Reel for D-1/2-1460

AM-9
Audio Marker

ECD-3C/10C/30C
Digital Audio Cable (3m, 10m or 30m)

SMK-0032
IEEE-488 Interface Cable for RM-3310



SU-15
Stand for Mounting RM-3310 and IF-3310 Interface Box

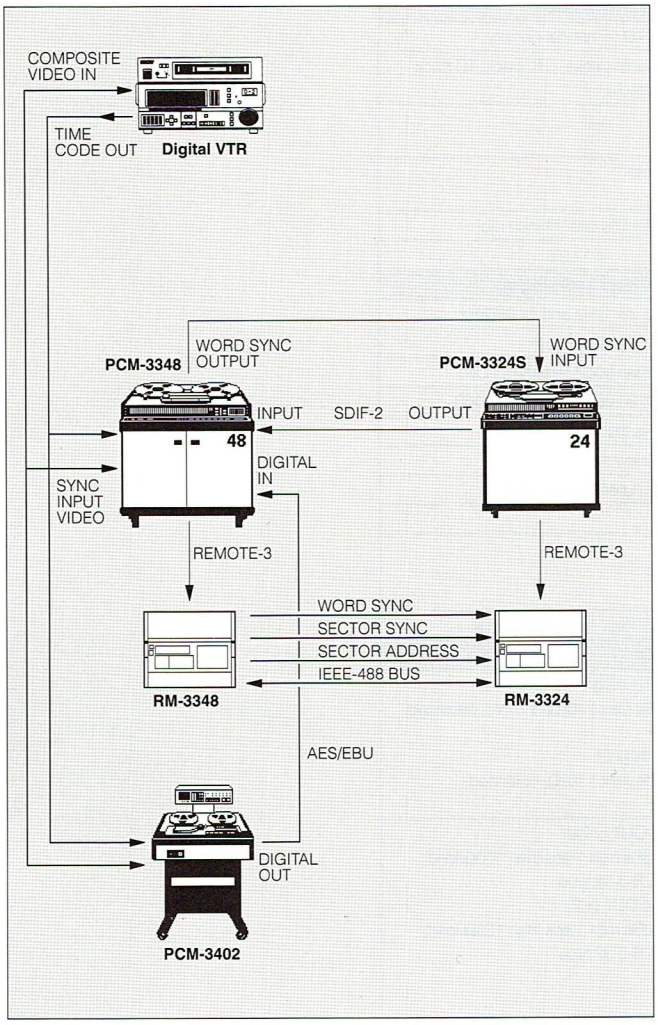
AH-3U
19-inch Rack Mount Adaptor for RM-3310

Specifications

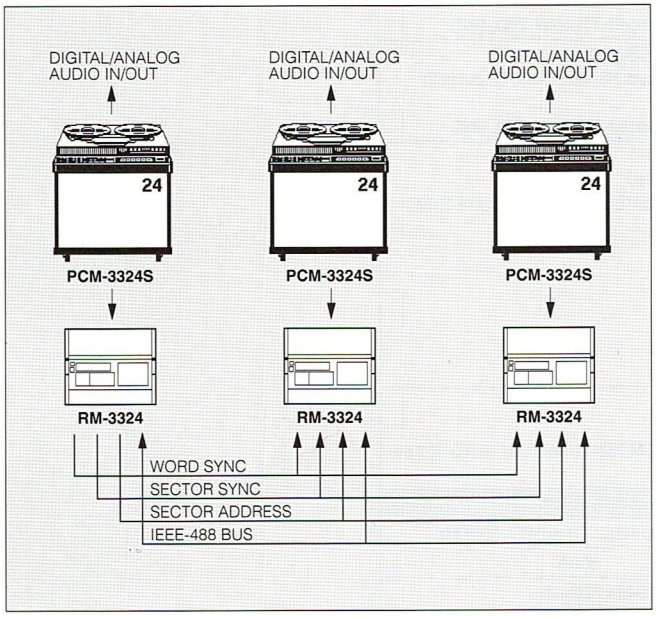
	PCM-3348	PCM-3324S
		Tape Format/Performance
Recording format	DASH-F double density	DASH-F normal density
Number of tracks	48 digital audio tracks, CTL track, TC track and 2 cue tracks	24 digital audio tracks, CTL track, TC track and 2 cue tracks
Tape speed (at fs=48kHz)	76.20cm/s	
Recording time	60 min with 14-inch reel at fs=48kHz	
FF and REW time	4 min 20s with 14-inch reel	4 min 55s with 14-inch reel
Variable speed range	±12.5%	
		Digital Audio Signal
Sampling frequency	48kHz, 44.1kHz and 44.056kHz	
Quantization	16-bit linear	
Dynamic range	More than 90dB (emphasis ON)	
Frequency response	20Hz to 21,700Hz +0.5dB/-1.0dB	20Hz to 20,000Hz +0.5dB/-1.0dB
Total harmonic distortion	Less than 0.1% (+4dBs)	Less than 0.07% (+4dBs)
Wow and flutter	Below measurable limit	
Inter-channel crosstalk	Less than -80dB	
Editing resolution	1 sector (1ms at fs=48kHz)	
Crossfade Punch in/out (fs=48kHz) Splice editing	1.4 ms to 341.3 ms (in 16 steps) 5.2 ms	
Emphasis	50µs/15µs, on/off selectable	
		Inputs/Outputs
Analog inputs	Digital Audio IN (x 48): +4dBs (+24dBs max.) 10kΩ or more, balanced, NK-27-31SL (1NK consists of 8-ch in total 6NKs) Analog Audio IN (x 2): +4dBs (+19dBs max.) 10kΩ, balanced, XLR-3-31 type	Digital Audio IN (x 24): +4dBs (+24dBs max.) 10kΩ or more, balanced XLR-3-31 type Analog Audio IN (x 2): +4dBs (+12dBs max.) 10kΩ, balanced, XLR-3-31 type
Analog outputs	Digital Audio OUT (x 48): +4dBs (+24dBs max.) less than 100Ω load, balanced, NK-27-32SL (1NK consists of 8-ch in total 6NKs) Analog Audio OUT (x 2): +4dBs (+19dBs max.) less than 100Ω load, balanced, XLR-3-32 type	Digita Audio OUT (x 24): +4dBs (+24dBs max.) less than 100Ω load, balanced, XLR-3-32 type Analog Audio OUT (x 2): +4dBs (+12dBs max.) less than 100Ω load, balanced, XLR-3-32 type
Digital inputs	AES/EBU: XLR-3-31 type SDIF-2 balanced: RS-422, D-sub 50-pin (x 2) (cover 48-ch) SDIF-2 unbalanced: TTL level, 75Ω, BNC	AES/EBU: XLR-3-31 type SDIF-2 balanced: RS-422, D-sub 50-pin (x 2) (cover 24-ch) SDIF-2 unbalanced: TTL level, 75Ω, BNC
Digital outputs	AES/EBU: XLR-3-32 type SDIF-2 balanced: RS-422, D-sub 50-pin (x 2) (cover 48-ch) SDIF-2 unbalanced: TTL level, 75Ω, BNC	AES/EBU: XLR-3-32 type SDIF-2 balanced: RS-422, D-sub 50-pin (x 2) (cover 24-ch) SDIF-2 unbalanced: TTL level, 75Ω. BNC
Other inputs	WORD SYNC IN (loop through): TTL level, 75Ω, unbalanced, BNC SECTOR SYNC IN (Loop through): TTL level, 75Ω, unbalanced, BNC SYNC INPUT VIDEO: TTL level, 75Ω, unbalanced, BNC, COMPOSITE VIDEO, COMPOSITE SYNC and SQUARE WAVE REMOTE 1 IN: SRIF-1 format, TTL level, D-sub 37-pin REMOTE 3 IN: SRIF-3 format, RS-422, D-sub 50-pin TIME CODE IN: 0.5 to 10Vp-p, 10kΩ, balanced, XLR-3-31 type SECTOR ADDRESS IN: TTL level, 75Ω, BNC EXT. SPEED CONTROL IN: ±10V, 10kΩ, balanced, XLR-3-31 type EXT. PHASE CONTROL IN: ±10V, 10kΩ, balanced, XLR-3-31 type	
Other outputs	WORD SYNC OUT (x 2): TTL level, 75Ω, BNC SECTOR SYNC OUT (x 2): TTL level, 75Ω, BNC TIME CODE OUT: 2.4Vp-p, 100Ω (PCM-3348), 1.5 to 8Vp-p, 100Ω (PCM-3324S), balanced, XLR-3-32 type SECTOR ADDRESS OUT: TTL level. 75Ω, BNC	
		General
Power requirements	AC 100 to 120V/220 to 240V, 50/60Hz	
Power consumption	1.2kW	800W
Dimensions (W x H x D)	916 x 997 x 740 mm (36 1/8 x 39 3/8 x 29 1/4 inches)	766 x 943 x 726 mm (30 1/4 x 37 1/4 x 28 5/8 inches)
Weight	246kg (543 lb)	120kg (246 lb 9 oz)

System Examples

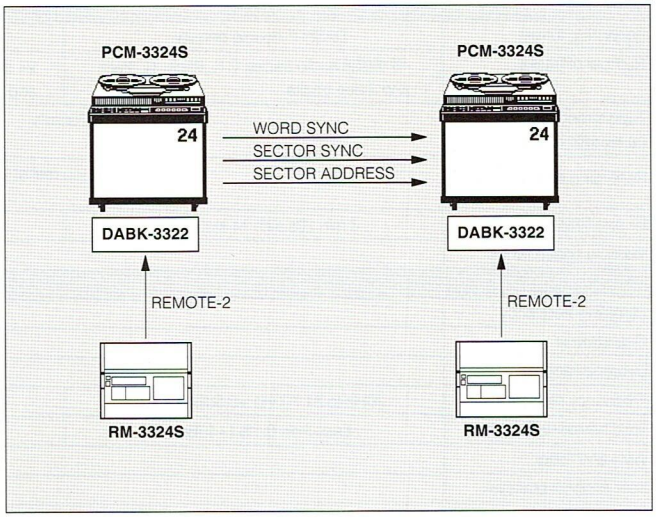
(1) Audio/Video Synchronization



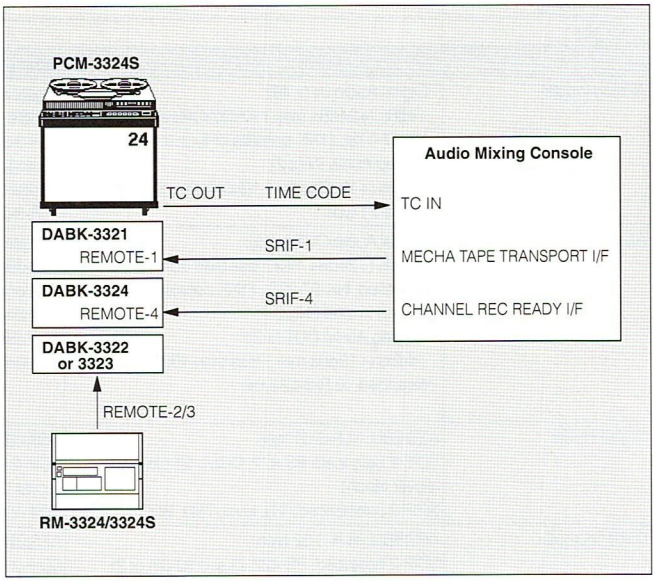
(2) 48-Channel or 72-Channel System



(3) 48-Channel Operation (DASH Chase)

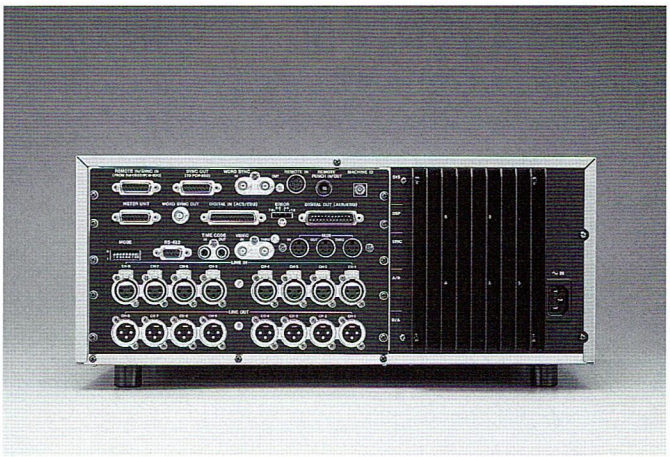


(4) Connection to Audio Mixing Console w/Automation Function



8-Channel Digital Recorder

PCM-800



- Uses a Hi-8 video cassette tape and records in the "DTRS" format. Employs advanced tape transport technology with professional sound quality, reliability and professional audio interfacing.
- AES/EBU digital I/O and XLR analog I/O connections
- 16-bit 8-channel digital recording
- Versatile audio interfacing capability
- Up to 16 recorder multi-operation, with the RM-D800 providing up to 128 channels of digital audio recording.
- Sampling frequency is selectable from 44.1kHz or 48kHz
- Auto punch IN/OUT using advanced digital crossfade technology, and external synchronization with SMPTE/EBU time code.
- Variable speed playback ±6% in 0.1% steps
- Adjustable crossfade time 10ms to 90ms in 10ms steps

Optional Accessories:

RM-D800: Remote Control
The RM-D800 can control up to six PCM-800 units

DABK-801: Sync board
SMPTE / EBU time code chase synchronization
Built-in time code generator
MIDI machine control
NTSC / PAL video synchronization

Specifications

Tape Format:	Hi-8 video tape
Recording time:	108 minutes (NTSC 120 tape)
Fast forward time:	Approx. 80 seconds
Digital audio:	8 channels
Sampling frequency:	48kHz, 44.1kHz
Quantization:	16-bit linear
Variable speed range:	±6% (in 0.1% steps)
Frequency response:	20Hz to 20kHz ±0.5dB
Dynamic range:	More than 92dB at 1kHz
Total harmonic distortion:	Less than 0.007% at 1kHz
Channel separation:	More than 90dB at 1kHz
Digital input:	8ch, conforms to AES/EBU, D-sub 25-pin
Digital output:	8ch, conforms to AES/EBU, D-sub 25-pin
Analog audio input:	8ch, +4dBu (+20dBu max.) 10kΩ, balanced, XLR-3-31 type(x8)
Analog audio output:	8ch, +4dBu (+20dBu max.) 75kΩ, balanced, XLR-3-32 type(x8)
Power requirements:	AC 120V, 60Hz or AC 230V / 240V, 50/60 Hz
Power consumption:	74W
Dimensions:	482(W) x 197(H) x 377(D) mm (19 x 7 7/8 x 14 7/8 inches)
Weight:	14kg (30 lb 14oz)

DTRS
DIGITAL TAPE
RECORDING SYSTEM

SECTION 2

DAT Recorders

PCM-7000 Series Timecode DAT Recorders

PCM-7050PAC 2-Channel Digital Audio Recorder 2-1
PCM-7030PAC 2-Channel Digital Audio Recorder 2-1
PCM-7010 2-Channel Digital Audio Recorder 2-1
- RM-D7300 Editing Remote Controller 2-2
- RM-D7200 Dual Remote Controller 2-2
- RM-D7100 Remote Controller 2-2,2-6
- DABK-7030/7010 Time Code Reader/Generator Option 2-2
- DABK-7031/7011A/7011B Digital I/O Option 2-2
- DABK-7012 Memory Start Option 2-2
- DABK-7033/7013 Computer Interface (RS-232C) Option 2-2
- DABK-7014 Remote Interface Option 2-2
- DABK-7055 Edit Memory Option 2-3
- Accessories 2-3
- System Configuration 2-3

PCM-E7700 Dat Workstation 2-4
- Specifications 2-5

Studio DAT Recorders

PCM-2700A 2-Channel Digital Audio Recorder 2-6
PCM-2600 2-Channel Digital Audio Recorder 2-6
DTC-A7 DAT Recorder 2-7
DTC-A8 DAT Recorder 2-7

Portable DAT Recorders

TCD-D10 PROII 2-Channel Digital Audio Recorder 2-8
TCD-D7 Digital Audio Tape Player/Recorder 2-9
SBM-1 Super Bit Mapping Adaptor 2-9
DAT Tapes 2-9

PCM-7000 Series Professional DAT Recorders

- Allows flexible system configurations with three recorders and a full range of options for each recorder
- Sophisticated electronic editing capability
- SMPTE/EBU time code recording/reading
- Memory start for instant-start playback
- Synchronized operation with video/audio equipment
- Time code chase synchronization (PCM-7050/7030 with appropriate options)
- 4-head construction for RAW (Read-After-Write) and RMW (Read-Modify-Write)
- Search/location capability
- Variable speed playback in a range of ±12.5%
- Switchable sampling frequencies of 48kHz and 44.1kHz (PCM-7010 supports recording and playback of digital audio data sampled at 32kHz)
- Controlled from Sony video editor BVE-9100/910 or digital audio editor DAE-3000
- 19-inch rack mountable with optional rack mount rail/adaptor RMM-30/31

2-Channel Digital Recorder

PCM-7050PAC

- The top of the range model recommended for use as the recorder in an editing system
- Millisecond accurate editing capability

2-Channel Digital Audio Recorder

PCM-7030PAC

- Optimized for use as a player in an editing system; ideal also for use in on-air or integrated audio/video systems

2-Channel Digital Audio Recorder

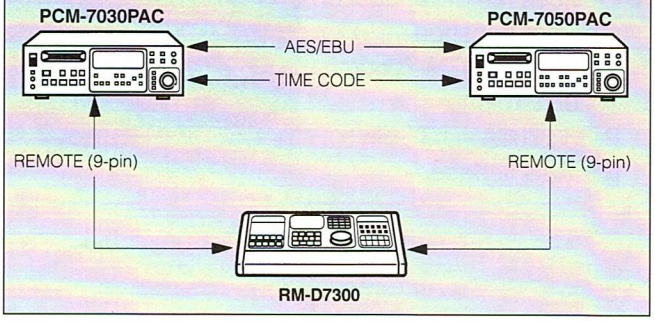
PCM-7010

- An affordable recorder suited for simple on-air applications
- Recording/playback of digital audio data sampled at 32kHz

Supplied Accessory

AC power cable

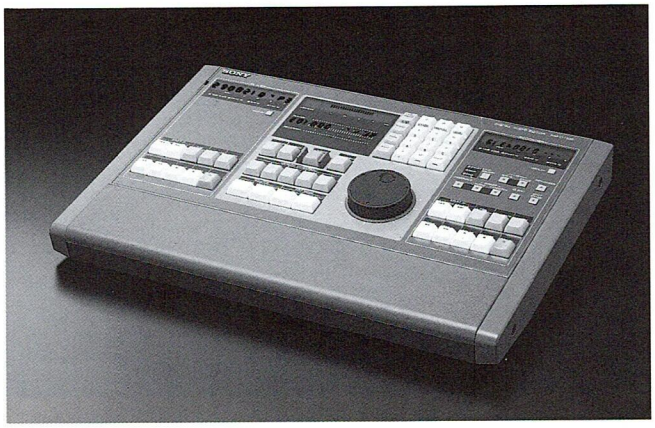
DAT Editing System with PCM-7000 Series



PCM-7000 Series Options and Accessories

Editing Remote Controller

RM-D7300



- Provides comprehensive control over editing operations with PCM-7050 and PCM-7030 via Sony 9-pin serial interface
- Makes it quick to input time code address, various ID codes and program numbers
- Enables gain control of both analog and digital inputs in the digital domain when used with PCM-7050

- Dimensions: 464 (W) x 78 (H) x 308 (D) mm (16 3/8 x 3 1/8 x 12 1/4 inches)
- Weight: 4.5kg (9 lb 13 oz)
- Power requirements: AC 100 to 240V, 50/60Hz
- Power consumption: 10W

Supplied Accessories

AC power cable
9-pin remote cable (x 2)

Dual Remote Controller

RM-D7200

- Provides remote control of two recorder transports

Remote Controller

RM-D7100

- Provides remote control of recorder transport functions of PCM-7050/ 7030/7010 and PCM-2700A via 37-pin parallel interface

Time Code Reader/Generator Option

DABK-7030/7010

- Provides capability of reading and generating SMPTE/EBU time code
- Enables recorder to operate in synchronization with an external video sync signal
- Provides time code chase synchronization facility to PCM-7050/7030 (DABK-7030)

Digital I/O Option

DABK-7031/7011A/7011B

- Conforms to the AES/EBU format (all models); offers unbalanced (IEC-958) digital I/O (DABK-7011A/ 7011B) and Sony SDIF-2 interface (DABK-7011B)
- Allows recorder to lock to an external word sync signal

Memory Start Option

DABK-7012

- Uses 4M-bit digital memory to give an instant start playback facility to PCM-7010

Computer Interface (RS-232C) Option

DABK-7033/7013

- Enables recorder to be controlled from a computer RS-232C port
- Useful for building up a sound effects library or a programmed playback system

Remote Interface Option

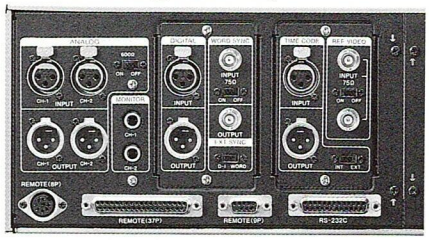
DABK-7014 (for the PCM-7010)

- Optional interface board for the PCM-7010 including serial remote interface connectors
- Enables connection between the PCM-7010 and the RM-D7200

Edit Memory Option

DABK-7055

- Improves precision and flexibility of editing with PCM-7050
- Memory search/memory rehearsal
- Crossfade at each edit point
- 1ms editing accuracy



PCM-7050 Rear Panel

Optional Accessories

RMM-30
19-inch Rack Mount Rail

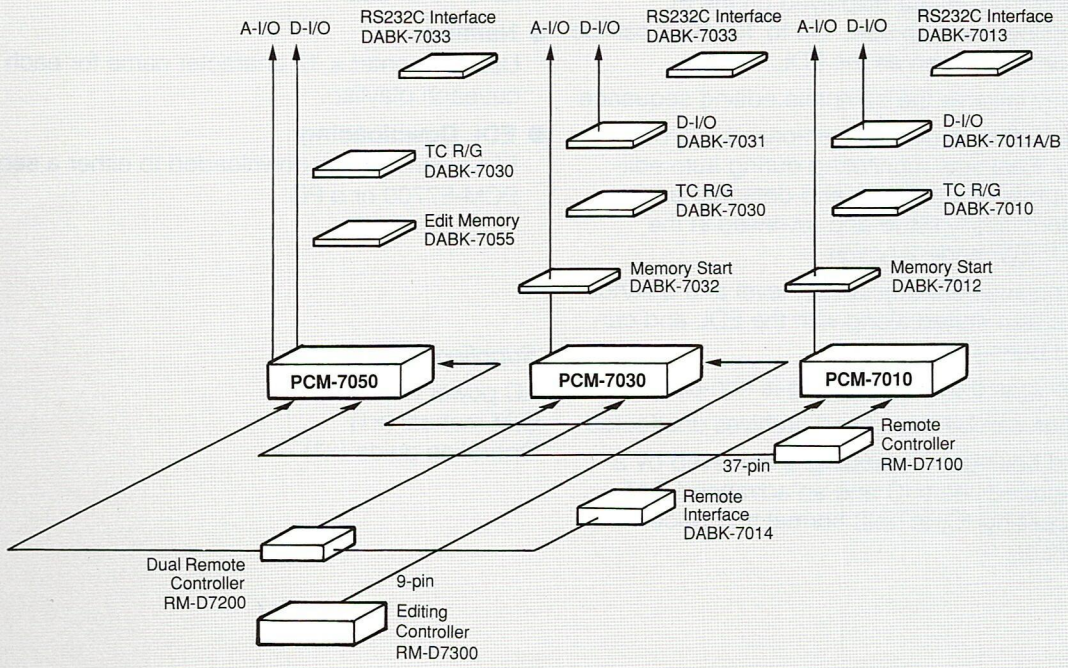
RMM-31
19-inch Rack Mount Adaptor

ECD-3C/10C/30C
Digital Audio Cable
- Length: 3m, 10m or 30m
- Format: AES/EBU
- Connectors: XLR-3-31 type↔ XLR-3-32 type

PCM-7000 Series Configuration Chart

	DABK-7030 TC READER/GENERATOR	DABK-7031 DIGITAL I/O	DABK-7032 MEMORY START	DABK-7055 EDIT MEMORY	DABK-7010 TC READER/GENERATOR	DABK-7011A, 7011B DIGITAL OPTION	DABK-7012 MEMORY START
PCM-7050PAC	X	X	X	X			
PCM-7030PAC	X	X	X				
PCM-7010F					X	X	X
PCM-7010T					X	X	
PCM-7010							

PCM-7000 Series System Configuration



Note 1: PCM-7050, 7030 and 7010 are AC operated.
2: A 9-pin cable is supplied with RM-D7300.

DAT Workstation

PCM-E7700

- Compact innovative design
- Excellent portability and simple operation. The design of the PCM-E7700 is like that of a laptop computer with an EL display.
- Both a player and a recorder, the compact, handy unit weighs approximately 8kg (17 lb.10 oz.).
- No complex interfacing
- The PCM-E7700 employs EDL based auto-assembly editing, which significantly reduces editing time.
- Edit-in and-out points are displayed on the EL (Electro-Luminescent) screen. Up to 100 bars can be displayed on the screen as the EDL.
- Auto Edit key initiates the complete editing sequence
- EDL and set-up data can be memorized in a back-up memory. Real time monitoring during auto editing and dubbing is provided, and detected errors can be automatically listed and reviewed in the ERROR REVIEW mode function.
- Level and balance are adjustable, level and balance settings are also stored along with the EDL and can be recalled during auto editing.
- All processing is digital and editing is non-destructive
- Source tapes can be saved and archives unaffected
- High-speed editing and dubbing is achieved by a newly developed servo IC and an advanced DAT signal processing IC, at both normal and twice normal speeds.
- Real-time jog capability with high sound quality
- RAW (Read-After-Write) function for real time monitoring.
- Internal SMPTE/EBU/Film timecode formats and absolute timecode (A-Time) can be used during recording and dubbing by the PCM-E7700 for editing.
- Timecode, ID and program number recording and locating capability.
- Headphone jack and unbalanced analog monitor outputs are provided.
- Equipped with both AES/EBU digital and balanced analog inputs.

PCM-E7700 Version 2.0 Software Features

- **3 Modes of Preview:**

  1. Single Cut Preview
  Lets user monitor each cut individually

  2. Multi-Cut Preview
  Plays through a succession of cuts from a designated starting point

  3. Memory Rehearsal
  Memory buffer is switchable between 5 and 10 seconds; allows user to edit a cut and edit between two cuts instantly.

- **Review:**
  Plays back edits done on the recorder after performing Auto-Edit

- **Insert Audio:**
  Allows insertion of audio to an already recorded program; exchanges a recorded cut in assemble mode for another cut.

- **Naming:**
  User can enter a 12 character name for each individual cut/each playlist.

- **EDL Downloading:**
  EDLs can now be downloaded to either a second PCM-E7700 or a PC.

Supplied Accessories

AC power cord (x1)
O/M manual (x1)
Operation guide (x1)

Specifications
PCM-E7700

Tape Format	
Recording system:	Rotary-head DAT recording
Scanner rotation speed:	Standard; 2000 rpm Twice normal speed; 4000 rpm
Tape speed:	Standard; 8.15mms Twice normal speed; 16.30mms
Track pitch:	13.6µm
Head system:	Rotary-head system (player; 2 heads, recorder; 4 heads)
Digital Audio Signal Format	
Number of channels:	2 (stereo)
Sampling frequencies:	48kHz, 44.1kHz
Quantization:	16-bit linear
Error correction:	Double-encoded Reed Solomon Code
Modulation:	8 to 10 modulation
Audio Performance	
Frequency response:	20Hz ~ 20kHz ±0.5dB (analog input)
Signal-to-noise ratio:	More than 90dB (analog input)
Total harmonic distortion:	Less than 0.05% (at reference level/analog input)
Crosstalk between channels:	More than 80dB (at 8kHz/analog input)
De-emphasis:	50µs/15µs (playback)
Wow and flutter:	Below measurable limit
Phase difference between channels:	Within 10 (20kHz)
Level difference between channels:	Within 0.2dB (1kHz)
Tape Transport	
FF and REW time:	Less than 60s (with Sony DT-120/PDP-120)
Search speed:	Max. x 150 normal speed
Jog speed:	x 1/128 ~ x 1 normal speed
Cueing speed:	x 1/5 ~ 32 normal speed
Locate accuracy:	0/-1 frame
Editing Performance	
Editing accuracy:	1ms
Crossfade time:	0 ~ 3s
Inputs/Outputs	
Analog inputs:	Reference level; +4dBu Maximum level; +24dBu Impedance; 10kΩ/600Ω Connector; XLR-3-31 type
Digital input:	Format; AES/EBU (w/transformer) Connector; XLR-3-31 type
Monitor output:	Level; -10dBu at reference level Impedance; 220Ω Connector ; Phono type
Headphone output:	Max. -26dBu at reference level (at 8Ω load), Phone (stereo)
General	
Dimensions:	380(W) x 121(H) x 422(D)mm (15 x 4 7/8 x 16 5/8 inches)
Weight:	Approx. 8kg (17 lb 10 oz)
Power requirements:	AC 100 ~ 240V, 50/60Hz
Power consumption:	45W

* 0dBu = 0.775V r.m.s.

2-Channel Digital Audio Recorder

PCM-2700A

- Affordable DAT recorder
- Suited for simple program transmission at broadcasting stations and simple recording/playback use at recording studios
- Switchable sampling frequencies of 32kHz*, 44. 1kHz and 48kHz
- Balanced digital I/O AES/EBU, Unbalanced (IEC-958 type I) digital I/O
- Balanced (XLR type) analog I/O
- 4DD mechanism for stable tape transport
- Auto locate-function based on absolute time
- 4-head construction for RAW (Read-After-Write)
- Remote-controlled from optional RM-D7100 via 37-pin parallel connector/8-pin DIN serial connector for Fader start capability
- Long play mode for 4 hours of recording/playback of 12-bit non-linear digital audio sampled at 32kHz frequency with PDP-120 tape
- 19-inch rack mountable with supplied rack mount adaptor

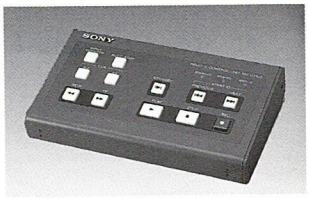
**In both Standard and Long Play modes, PCM-2700A supports recording and playback at 32kHz sampling frequency except recording of the analog input in the Standard mode.*

Supplied Accessories

RM-D2700 wireless remote control unit
SUM-3 AA size battery (x 2)
19-inch rack mount adaptor
Overlay sheet for RM-D7100

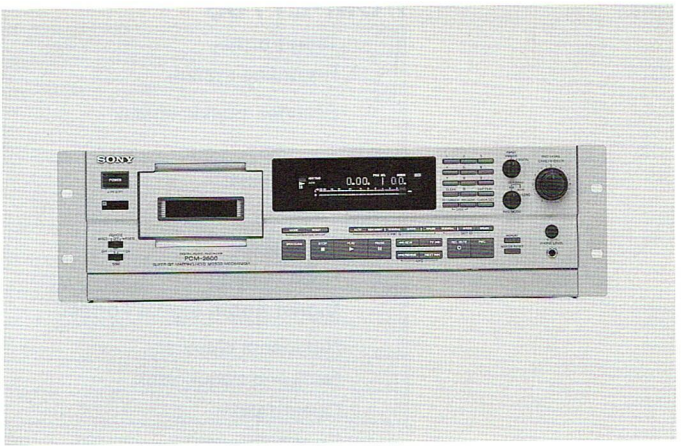
Optional Accessory

RM-D7100
Remote Controller



2-Channel Digital Audio Recorder

PCM-2600



- Two-head, four-motor tape transport
- AES/EBU digital I/O
- New high bit pulse A/D & D/A converters with SBM filter on the analog input
- Superb sound quality
- Three alternative sampling frequencies: 32kHz*, 44.1kHz, 48kHz
- Wireless/wired remote control capability
- New Din 8-pin parallel remote
- Suited for simple recording/playback use at recording studios

**In both Standard and Long play modes the PCM-2700A/2600 supports recording and playback at 32kHz sampling frequency except recording of the analog input in the Standard mode.*

Supplied Accessories

Wireless/wired remote control unit
AA size SUM-3 (NS) battery (x2)
19-inch rack mount adaptor
AC power cable

DAT Recorder

DTC-A8

- 2-head, 4-motor tape transport
- New pulse A/D with SBM filter on analog input
- Support of all major sampling frequencies–analog and digital input recording at 32kHz (LP mode), 44.1kHz & 48kHz
- A/D & D/A monitoring modes
- Digital input & output coaxial (IEC-958 Type II) and optical (EIAJ) type interfaces are implemented
- Unbalanced analog inputs and outputs (RCA) & phone
- Absolute time (A-Time) recording
- Date/Time recording
- Advanced pulse D/A
- Remote footswitch control

Supplied Accessories

Remote commander RM-D70 (1)

Sony batteries SUM-3(NS) (2)

Audio connecting cords (2 phono plugs- stereo for line inputs and outputs) (2)

Adaptors (phono plug › standard plug) (4)

Rack mount adaptor (2)

Optional Accessory:

FS-A8 Double Foot Pedal Remote

Note: These products include the SCMS copy management system.

DAT Recorder

DTC-A7

- Cost-effective DAT recorder
- High quality 1-bit A/D & HDLC D/A converters
- Support of all major sampling frequencies–analog and digital input recording at 32kHz (LP mode). 44.1kHz & 48kHz
- A/D & D/A monitoring modes
- Digital input & output coaxial (IEC-958 Type II) and optical (EIAJ) type interfaces are implemented
- Unbalanced analog inputs and outputs (RCA)
- Absolute time (A-Time) recording
- Date/Time recording

Supplied Accessories

Remote commander RM-D70 (1)

Sony batteries SUM-3(NS) (2)

Audio connecting cords (2 phono plugs- stereo for line inputs and outputs) (2)

Adaptors (phono plug › standard plug) (4)

Rack mount adaptor (2)

2-channel Digital Audio Recorder

TCD-D10 PROII

- Portable DAT recorder of extremely compact dimensions
- Easy-to-read LCD multi-function display
- Absolute time recording
- Balanced, switchable MIC/LINE inputs
- Built-in hours meter, microphone low-cut filter and microphone attenuator/limiter
- AES/EBU type digital I/O
- High-speed search using the ID recorded in subcode area
- Built-in speaker
- AC/DC operation — AC 100 to 240V with ACP-88 AC adaptor; DC 6V with NP-22H rechargeable battery pack

Supplied Accessories

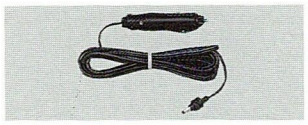
Carrying case
Shoulder belt
NP-22H rechargeable battery pack (x 2)
ACP-88 AC power adaptor
BC-D10 charging adaptor
Digital I/O connecting cable
SAD-44 (PF 1/2-inch ↔ W 3/8-inch) microphone stand screw adaptor
SAD-45 (PF 1/2-inch ↔ NS 5/8-inch) microphone stand screw adaptor

Optional Accessories

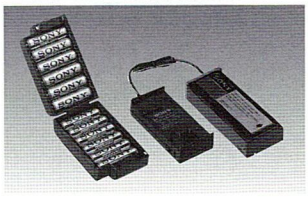
NP-4000
Rechargeable Battery Pack

DCP-80
Voltage Stabilizer for NP-4000

DCC-16A/AE/AW
Car Battery Cord



NPA-D10
Holds 12 AA-size batteries for 1 hour of continuous operation



DAT Walkman® Digital Audio Tape Player/Recorder

TCD-D7

- Full featured DAT player/recorder
- Long play mode for up to 4 hours of recording and playback
- Automatic date function for fast identification of recording
- DVLS (Digital Volume Limiter System)
- Anti-shock mechanism for recording and playback
- High-speed AMS search
- LCD display with backlit window and 4-segment battery indicator
- Digital coaxial and optical input and output capability
- Operates on 4 "AA" alkaline batteries

Supplied Accessories

Carrying Case

Optional Accessories:

AC-E60L AC Power Adaptor
DCC-E160L Car Battery Cord
ECM-737/ECM-727P Stereo Microphone
POC-DA12 Digital Optical Input/Output Connecting Cord
RK-DA10 Coaxial Input Connecting Cord
RM-D3K System Adaptor for Complete Digital Interface, Wireless Remote Control and Timer-Activated Recording Capability
DT-10CL Cleaning Cassette

The TCD-D7 incorporates the Serial Copy Management System which will not prevent you from making a direct-to-digital copy from a digital source, but will prevent a second digital-to-digital copy being made from such copies.

SBM-1
Super Bit Mapping Adaptor for TCD-D7

- Built-in 20-bit AD converter for high quality recording
- Digital Input/Output capability for both optical & coaxial
- 4 hour operation with 4 "AA" batteries
- Manual recording level control
- LED battery indicator

DAT tapes

PDP-30/46/60/90/120
Digital Audio Tape

DT-10CL
Cleaning Tape

DT-60R/90R/120R
Digital Audio Tape

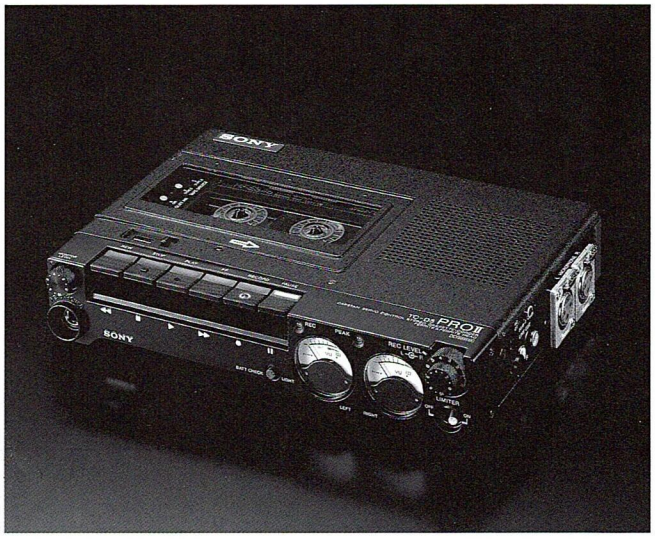
SECTION 3

Portable Analog Recorder

TC-D5 PROII Portable Cassette Recorder 3-1

Portable Cassette Recorder

TC-D5 PROII



- Reliable mechanism including disc-drive capstan-servo tape transport with coreless motor
- Powered by two "D" size batteries; operates also on AC with the addition of optional AC-D468 AC adaptor and connects to car battery with optional DCC-127A car battery cable
- Compact unit measuring 242 (W) x 48(H) x 168(D)mm (9 5/8 x 1 7/8 x 6 5/8 inches) and weighing 1.7kg (3 lb 12 oz) including batteries

Supplied Accessories

Connecting cable
Carrying case and shoulder strap
Belt

SECTION 4

Digital Micro Recorders

NT-1 Digital Micro Recorder 4-1
NT-2 Digital Micro Recorder 4-1

Digital Micro Recorder

NT-1

- Compact size and light weight allow recording almost anywhere
- Long recording time of up to 7 hours using a single "AA" alkaline battery
- Stamp-size cassette tapes are capable of up to 120 minutes of recording/playback (60/90/120 minutes)
- Low noise, digital stereo recording/playback for superior speech intelligibility
- Multi-function LCD display shows (your choice of): tape counter (4-digit); time (Hours/Minutes); time remaining on the cassette; month and day; year and month
- Automatic gain control ensures the correct recording level (can also be adjusted manually)

Digital Micro Recorder

NT-2

- Seamless Auto-Reverse
- Feather Touch Operation

Supplied Accessories

Adaptor Unit or connecting cord
Lithium Battery (CR-1220)
AC Power Adaptor
Connecting Cord
Stereo Microphone
Microphone Stand
Microphone Attenuator
NTC-90 Cassette Tape
Carrying Case
Stereo Headphones

Optional Accessories

Cassette Tapes (NTC-60/90/120)
Head Cleaning Cassette (NTC-10CL)

SECTION 5

Professional MiniDisc Recorder/Players

MDS-B3/MDS-B4P MiniDisc Recorder/Player 5-1
Specifications 5-2
MZ-B3 MiniDisc Dictation 5-3

MiniDisc Recorder/Player

MDS-B3/MDS-B4P

Common Features: MDS-B3 / MDS-B4P

- Quick random access
- High quality digital sound
- Program playback capability. Tracks can be freely and randomly programmed for playback in any order, using the supplied remote controller.
- AUTO PAUSE and AUTO CUE functions for rapid cueing and playback.
- Easy-to-read FL display
- Switchable Repeat-1 and Repeat-All modes:
  In the REPEAT 1 mode, the MDS-B3/B4P repeatedly plays back the current track. In the REPEAT ALL mode, a sequence of tracks or all tracks are repeatedly played back in sequence. If neither mode is selected, each track is played back once.
- Up to 74 minutes of digital recording and playback using ATRAC (Adaptive Transform Acoustic Coding) compression technology providing the same 74 minutes recording as a Compact Disc and assures clear, digital audio quality.
- EOM (End of Message) function can be set to occur between 1 and 35 seconds before the end of a track.
- Durable non-contact disc-based format

- 19-inch rack mountable; up to three units can be mounted side by side in a 19-inch standard rack.
- Remote control via a D-sub 9-pin serial remote interface which conforms to the RS-232C protocol for external computer control. A D-sub 25-pin parallel remote interface is also available for external control.
  Can also be controlled by the RM-DC1 remote controller supplied with the MDS-B3.
- Versatile audio interfacing - the MDS-B3 is equipped with unbalanced IEC-958 digital audio I/O and balanced XLR analog I/O. The MDS-B4P also has both IEC-958 digital and balanced XLR analog outputs for connection with professional audio equipment.
- Hours meter for maintenance scheduling

MDS-B3 (Recorder) Features

- Quick Recording Capability - quickly searches to a point on the disc where no audio signal is recorded, and begins recording.
- Supplied remote controller enables user to enter data such as track titles onto a disc.
- Provides quick editing capability by rewriting the TOC (Table of Contents) area of the disc.

Rear Panel of MDS-B3

Rear Panel of MDS-B4P

SECTION 5

Specifications

MDS-B3 MiniDisc Recorder

Format:	MiniDisc digital audio system
Recording system:	Magneto-optical overwriting
Playback system:	Optical pickup system
Laser:	GaAlAs Double hetero junction diode
Rotational-speed:	CLV (Approx. 400 rpm - 900 rpm)
Error correction system:	ACIRC (Advanced Cross Interleave Reed Solomon Code)
Sampling frequency:	44.1kHz
Signal compression system:	ATRAC (Adaptive Transform Acoustic Coding)
Modulation system:	EFM (Eight to Fourteen Modulation)
Number of channels:	2 channels (stereo)
Recording/Playback time:	Maximum 74 minutes
Frequency response:	20Hz - 20kHz (±0.5dB)
Signal-to-noise ratio:	More than 83dB (overall) More than 95dB (when playing back a premastered disc)
Wow and flutter:	Below measurable limit
Analog inputs:	+4dBu (+24dBu max.), adjustable range of -12dBu to +8dBu 10kΩ, balanced, XLR-3-31 type (x2)
Analog outputs:	±4dBu (+24dBu max.), adjustable range of -12dBu to +8dBu, less than 50kΩ, balanced, XLR-3-32 type (x2)
Digital I/O:	Digital Input- IEC 958 Type I Digital Output- IEC 958 Type II phono type (x2)
Parallel remote:	D-sub 25-pin (female)
Serial remote:	D-sub 9-pin (male), RS-232C protocol
Power requirements:	AC 120V, 60Hz (UC model) AC 230 - 240V, 50/60Hz (EK model)
Power consumption:	Approx. 25W
Dimensions:	Approx. 142(W) x 132(H) x 375(D)mm (5 5/8 x 5 1/4 x 14 7/8 inches)
Weight:	Approx. 5kg (11 lb)
Supplied accessories:	Wired remote controller RM-DC1 (x1) Connecting cable (x1) Sony SUM-3 (NS) batteries (x3) AC power cord (x1) Operation manual (x1)

MDS-B4P MiniDisc Player

Format:	MiniDisc digital audio system
Playback system:	Optical pickup system
Laser:	GaAlAs Double hetero junction diode
Rotational-speed:	CLV (Approx. 400 rpm - 900 rpm)
Error correction system:	ACIRC (Advanced Cross Interleave Reed Solomon Code)
Sampling frequency:	44.1kHz
Signal compression system:	ATRAC (Adaptive Transform Acoustic Coding)
Modulation system:	EFM (Eight to Fourteen Modulation)
Number of channels:	2 channels (stereo)
Playback time:	Maximum 74 minutes
Frequency response:	20Hz - 20kHz (±0.5dB)
Signal-to-noise ratio:	More than 95dB (when playing back a premastered disc)
Wow and Flutter:	Below measurable limit
Analog outputs:	±4dBu (+24dBu max.) adjustable range of -12dBu to +8dBu, less than 50kΩ, balanced, XLR-3-32 type (x2)
Digital outputs:	Unbalanced IEC-958 Type II format phono type
Parallel remote:	D-sub 25-pin (female)
Serial remote:	D-sub 9-pin (male), RS-232C protocol
Power requirements:	AC 120V, 60Hz (UC model) AC 230 - 240V, 50/60Hz (EK model)
Power consumption:	Approx. 25W
Dimensions:	142(W) x 132(H) x 375(D)mm (5 5/8 x 5 1/4 x 14 7/8 inches)
Weight:	Approx. 5kg (11 lb)
Supplied accessories:	AC power cord (x1) Operation manual (x1)

Optional Accessories:

Wired Remote Controller RM-DC1 x1

* 0dBU = 0.775V r.m.s.

Portable MiniDisc Recorder/Player

MZ-R3

- Ultra compact design
- Stereo headphones with remote controller (supplied)
- 10 second shock resistant memory
- Disc/Track titling with easy character input
- Editing with "Track Mark", Move, All Erase, and One Erase functions
- Large LCD display shows disc names, track names, position on disc, and operation function
- Digital optical line-in
- Bass boost
- Automatic gain control for recording
- 7 Hours recording with 2 "AA" batteries and LIP-12 rechargeable battery
- Battery life indicator

Supplied Accessories

MDR-14 Headphones with Remote Control
AC Adaptor
Dry Battery Case
Carrying Case
Connecting Cord

Optional Accessories:

Recordable MD MDW-60/MDW-74
Worldwide AC Adaptor/Quick Charger
Digital Connecting Cable POCMZ-1
LIP-12 Lithium Ion Rechargeable Battery
Microphones

SECTION 6

CD Players

CDP-2700 Compact Disc Player....6-1
CDP-3100/CDS-3100 CD Player System....6-1
Specifications....6-2
CDK-3600 CD Auto Disc Loader....6-3

Compact Disc Player

CDP-2700

- An affordable CD player ideal for broadcast stations and post-production houses
- Accommodates both 8cm (3-inch) and 12cm (5-inch) compact discs
- Built-in digital outputs conforming to the AES/EBU and unbalanced (IEC-958) formats
- Built-in DIN 8-pin remote control connector for enabling fader start/stop from a mixing console
- Auto cue playback for rapid start from a point where modulation is detected on the disc
- Variable speed playback (±12.7% in 0.1% steps)
- Various playback modes including programmed playback, delete playback, etc.
- 19-inch rack mountable with supplied rack mount adaptor

Supplied Accessories

19-inch rack mount adaptor
AC power cable

CD Player System

CDP-3100/CDS-3100

Player **Remote**

- 18-bit D/A conversion system with 8 times oversampling, gives excellent sound quality and an outstanding dynamic range.
- Jog Search Function operated from the CDS-3100 allows speedy and precise location of a desired source
- Preview 'END' and 'BEGIN' Functions. The END REHEARSAL function plays back the last 15 seconds of a selected track. The BEGIN REHEARSAL function makes it possible to playback from the beginning of a track.
- Three timer modes, Remaining Time, Actual Time and Set Time are selectable.
- Variable Speed Playback
- AMS (Auto Music Sensing) Function
- 1Cue Point Memory / Last Cue Memory Functions
- Fader Start Function

OPTIONS

- The DABK-3101 Memory Board provides instant memory start and a memory JOG function with an accuracy of one CD frame
- The DABK-3102 is an interface board for digital mixers and video editors, which allows control from a digital mixer or video editor via a 9-pin serial remote connector. AES/EBU digital output, reference video sync input, word sync input, D-I sync input and timecode signals are provided.
- With the DABK-3103 interface board, the CDP-3100 can be controlled from a DAE-3000 digital audio editor SDIF-2 output, and word sync input are provided.
- The CDP-3100 has three alternative player modes
- End Alarm Function
- Single play mode and index mode
- Compact size
- Accommodates 8cm (3-inch) and 12cm (5-inch) CDs

Specifications

	CDP-3100	CDP-2700
Number of channels	2 (stereo)	2 (stereo)
Readout system	Non-contact optical system using semiconductor laser pick-up	
Laser	GaAlAs double hereto junction diode with 780m wavelength	Semiconductor laser (=780m)
Rotational speed	Between approx. 200 rpm (outer circumference) and 500 rpm (inner circumference)	
Error correction	Sony super strategy cross interleave Reed Solomon Code (CIRC)	
D/A conversion	18-bit 8 times oversampling	8 x fs 2DAC 18-bit DF (45-bit)
Frequency response	20Hz to 20,000Hz +0.5dB/-1.0dB (maximum output level)	20Hz to 20,000Hz ±0.5dB
Harmonic distortion	Less than 0.01%	Less than 0.04%
Wow and flutter	Below measurable limit	
Signal-to-noise ratio		More than 110dB
Crosstalk	88dB	Less than -80dB at 20kHz
Varible speed range	±12.5%	±12.7%
Outputs	LINE OUT: Balanced, XLR-3-32 type (x 2), nominal +4dBu (600Ω), maximum +19dBu (600Ω) MONITOR OUT:Unblanced, RCA pin jack (x2) nominal -10dBu (47kΩ), maximum +5dBu (47kΩ) DIGITAL OUT: AES/EBU, XLR-3-32 (x 1) HEADPHONE OUT: Maximum 0dBu (32Ω)	LINE OUT: Balanced, XLR-3-32 type 0dBs (+15dBs, Max.) MONITOR OUT: 8dB max, Phono UNBALANCED OUT: 8dBs, Phono (x 2) DIGITAL OUT: AES/EBU, XLR-3-32 type or Unbalanced (IEC-958), Phono (x2) HEADPHONE OUT: 28mW at 32Ω
Parallel remote connector	DIN 8-pin type	———
Remote control I/F	10-pin	DIN 8-pin for fader control
Power requirements	AC 100, 120, 220 - 230, 240V, 50/60Hz	AC 120V, 60Hz (U/C) AC 220 to 240V, 50/60Hz (EK)
Power consumption	35W	20W
Dimensions (W x H x D)	212 x 118 x 408 mm (8 ⅓ x 4 ¾ x 16 ⅛ inches)	430 x 125 x 375 mm (17 x 5 x 14 ⅞ inches)
Weight	Approx. 6.5kg (14 lb 5 oz)	Approx. 10kg (22 lb 1 oz)

CDS-3100 Compact Disc Player Control Unit	
Search precision:	*1 CD frame (13.3ms)
Headphone output:	Maximum 0dBu (32Ω)
Weight:	Approx. 700g (1 lb 9 oz)
Dimensions:	106 (W) x 58 (H) x 220 (D) mm (4 ¼ x 2 ⅜ x 8 ¾ inches)
Supplied accessories:	Connecting cable (2m) (1) Operation manual (1)

* 0dBu = 0.775 r.m.s.

CD Auto Disc Loader

CDK-3600

- Holds 360 compact discs
- Incorporates two CD players for continuous playback, with crossfade between the two; crossfade time is variable over the range of zero to ten seconds in 0.1 second steps for each player.
- Various types of CD formats such as CD-DA, CD-G, CD-1 and CD-ROM can be played back
- Each player can be separately connected to an audio mixer
- Automatic cueing gives a rapid start from the point where modulation is detected on a compact disc for on-air applications
- Playback speed is variable over the range of ±12.5% in 0.1% steps, with the adjusted playback signal being output from analog connectors.
- Most operations are controlled from an external computer connected via the RS-232C or RS-422A interface
- Up to 28 CDK-3600 units can be connected through the computer interface, allowing up to 9,999 discs to be controlled from the user's computer.
- Disc access time is less than two seconds and loading time is less than 15 seconds under computer control
- Digital outputs conform to both AES/EBU and unbalanced IEC-958 (type II) for direct connection to professional digital equipment
- Balanced XLR and unbalanced phono analog outputs are provided for connecting with various monitor systems
- A self-diagnosis function and hour-meter are provided for easy maintenance
- 19-inch rack mounting is possible with the optional rack mounting kit

Specifications

CD Storage Capacity:	360
Number of Players:	2
Frequency Response:	20Hz to 20kHz ±0.5db
Signal-to-Noise Ratio:	More than 100dB
Harmonic Distortion:	Less than 0.04%
Wow and Flutter:	Below measurable limit
Channel Separation:	More than 90dB
D/A Converter:	8 x fs 2DAC 18-bit DF (45-bit)
Loading Time:	Less than 15s
Access Time:	Less than 2s
Analog Outputs:	Balanced +4dBu (+24dBu max.) load impedance 600Ω XLR-3-32 type (x6), (A,B,Mixed) unbalanced +8.5dBu max. (50kΩ terminated) load impedance more than10kΩ Phono type (x6), (A,B,Mixed)
Digital Outputs:	AES/EBU, XLR-3-32 type (x2),(A,B) IEC-958 unbalanced (type II), Phono (x2), (A,B)
Interface:	RS-232C: D-sub 25-pin In/Through RS-422A: D-sub 9-pin In/Through
Sub Code Outputs:	D-sub 15-pin
Variable Speed:	±12.5% (0.1% steps)
Crossfade Time:	0 to 10s (0.1s steps)
Power Consumption:	Approx. 30W
Power Requirements:	AC 120V, 60Hz (U/C) AC 220 to 240V, 50/60Hz (EK)
Dimensions:	430(W) x 800(H) x 452(D) mm (17 x 31 1/2 x 17 7/8 inches)
Weight:	Approx. 40kg (88lb 3oz)
Supplied Accessory:	AC power cable
Optional Accessory:	RMM-3600 (19-inch rack mount adaptor)

* 0dBu = 0.775V r.m.s.

SECTION 7

CD/MD Mastering Systems

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Digital Master Disc Recorder

PCM-9000

- MSD-1200 – Newly developed single sided magneto-optical (MO) disc
- AAIP (Absolute Address In Pre-Groove). The pre-groove contains absolute address information (AAIP) so that formatting a new disc is not necessary. The PCM-9000 converts this AAIP into SMPTE/EBU time code for the timer display.
- The RM-D9000 remote controller provides four different operational modes; Normal, Disc, File and Copy.

  Normal mode: Records/reproduces two channels of digital audio using the MAIN data area of the MO disc

  Disc mode: Plays back a single track selected in the normal mode

  File mode: Provides non-linear operation, allowing easy rearrangement of track play order. Up to nine of these program play files can be memorized on the AUX data area of the disc.

  Copy mode: 2x speed–transfer both MAIN data and AUX data (in an order determined in the file mode) to a second PCM-9000 connected via the optional DABK-9005 SCSI interface board.
- In the shuttle mode, track jump sound can be monitored. In the jog mode, digital jog sound is provided when the optional DABK-9007 memory board is fitted.
- The recording/reproduction speed can be varied by ±12.5% of normal, in steps of 0.1%
- The DABK-9007 memory board provides digital jog sound, enabling the PCM-9000 to edit to a precision of one sample. Crossfades can be made at each edit point.
- The sampling frequency can be selected to be 48kHz, 44.1kHz or 44.056kHz
- Can be synchronized for operation with external reference signals such as composite video, composite sync, black burst, word sync, AES/EBU D/I sync. It can be locked to NTSC/PAL video signals and can accommodate any format of time code; SMPTE (drop frame or non-drop frame), EBU or FILM.
- Can be locked to incoming time code with sub-frame accuracy without an external synchronizer. The intergral chase synchronizer has two alternative time code chase synchronization modes.
- Address mode (Re-chase mode)
- Free run mode
- 2-channel Digital Insertion unit is equipped with an AES/EBU digital insertion interface for an external effector
- Disc Erase Functions. In addition to the normal over writing of the record function; instant erase and disc erase modes are available.
- Compact design and low power consumption

Supplied Accessories

AC power cable
O/M manual
Quick reference guide
Rack mount adaptor

Specifications
PCM-9000

Format/Performance

Recording format:	Sony digital master disc proprietary format
Disc size:	133mm (5.25-inch), single sided
Digital audio channels:	2 channels
Sampling frequency:	48kHz, 44.1kHz, 44.056kHz selectable
Quantization:	16-bit linear, 20-bit linear, 24-bit linear selectable
Error correction:	Sony super strategy cross interleave Read Solomon Code (CIRC)
Rotation mode:	Constant Linear Velocity (CLV)
Recording time:	100 minutes (Fs = 44.1kHz, 16-bit) 80 minutes (Fs = 44.1kHz, 20-bit) 65 minutes (Fs = 44.1kHz, 24-bit)
Variable speed range:	±12.5% (0.1% steps)
Editing accuracy:	1 word with DABK-9007

Digital Audio Signal

PCM-9000 with DABK-9001 20-bit AD/DA board

Frequency response:	20Hz to 20kHz ±0.5dB at Fs = 48kHz
Total harmonic response:	Less than 0.03% (20Hz to 20kHz at reference level)
Signal-to-noise ratio:	More than 103dB
Crosstalk between channels:	Less than -103dB at 20Hz to 20kHz

PCM-9000 with DABK-9002 18-bit AD/DA board

Frequency response:	20Hz to 20kHz ±0.5dB at Fs = 48kHz
Total harmonic response:	Less than 0.03% (20Hz to 20kHz at reference level)
Signal-to-noise ratio:	More than 93dB
Crosstalk between channels:	Less than -80dB at 20Hz to 20kHz

Digital Inputs/Outputs

Digital inputs:	2 ch, AES/EBU, XLR-3-31 type (x1) 2 ch, SDIF-2 unbalanced, BNC type (x2), w/DABK-9004
Digital outputs:	2 ch, AES/EBU, XLR-3-32 type (x1) 2 ch, SDIF-2 unbalanced, BNC type (x2), w/DABK-9004
Insertion send:	2 ch, AES/EBU, XLR-3-32 type (x1)
Insertion return:	2 ch, AES/EBU, XLR-3-31 type (x1)

Analog Inputs/Outputs

Analog inputs:	2 ch, +4dBU (+26dBu max.), adjustable range of -6dBu to +6dBu 20kΩ/600Ω selectable, balanced, XLR-3-31 type (x2), w/DABK-9001
Analog outputs:	2 ch, +4dBU (+26dBu max.), adjustable range of -6dBu to +6dBu, 60Ω, balanced, XLR-3-31 type (x 2), w/DABK-9001

Other Inputs/Outputs

Time code IN:	SMPTE/EBU, 0.5Vp-p to 10Vp-p, 10kΩ, balanced, XLR-3-31 type (x1), w/DABK-9003
Time code OUT:	SMPTE/EBU, 2.4Vp-p to ±0.1V, less than 100Ω, balanced, XLR-3-32 type (x1), w/DABK-9003
Word sync IN:	More than 3Vp-p, 75Ω, BNC type (x2), loop-through
Word sync OUT:	TTL compatible, 75Ω, BNC type (x2)
D/I sync IN:	AES/EBU, XLR-3-31 type (x1)
Reference video:	Black Burst: 0.3Vp-p, 75Ω Composite sync: 4Vp-p, 75Ω Square wave: 0.3Vp-p to 5Vp-p, 75Ω BNC type (x2), loop-through
Cue data IN:	0.5Vp-p to 10Vp-p, 600Ω/10kΩ, balanced, XLR-3-31 type (x1), w/DABK-9006
Cue data OUT:	2Vp-p to ±0.2V, 600Ω, balanced,XLR-3-32 type (x1), w/DABK-9006
Status OUT:	RS-232C, D-sub 25-pin (x1)
RM-D9000 remote:	DIN 10-pin (x1)
Serial remote:	RS-422, D-sub 9-pin (x1), w/DABK-9003
Parallel remote:	TTL compatible, D-sub 50-pin, w/DABK-9003
DAQ-1000 I/F:	TTL compatible, amphenol 36-pin (x1), w/DABK-9006
SCSI I/F:	Amphenol 50-pin (x2), w/DABK-9005

General

Power requirements:	AC 100V to 240V, 50/60Hz
Power consumption:	130W (with maximum options)
Dimensions:	424 (W) x 176 (H) x 455 (D) mm (16 ¾ x 7 x 17 ¾ inches)
Weight:	18kg (39 lb 11 oz) PCM-9000 with RM-D9000

* 0dBu = 0.775V r.m.s.

PCM-9000
OPTIONAL ACCESSORIES

MSD-1200
Digital Audio Master Disc

Enables two channels of digital audio to be recorded for 100 minutes in 16-bit linear recording mode, 80 minutes in 20-bit and 65 minutes in 24-bit (at Fs = 44.1kHz).
*Preformatted with absolute address in pre-groove (AAIP)

RM-D9000
Remote Control Unit

Provides convenient remote operation of the PCM-9000. It can either be fitted onto the front panel of the PCM-9000 or located separately with a single cable connection

DABK-9001
20-bit AD/DA Board

Performs 20-bit A/D and D/A signal conversions

DABK-9003
Remote TC Interface Board

Contains 9-pin serial remote and 50-pin parallel remote interface connectors. D-sub 9-pin serial remote interface conforms to the Sony serial protocol. Equipped with a serial SMPTE/EBU time code interface connector– a PCM-9000 fitted with a DABK-9003 is capable of outputting SMPTE/EBU time code converted from AAIP and accepting external SMPTE/EBU time code

DABK-9004
SDIF-2 Interface Board

Allows the PCM-9000 to be connected to a conventional CD/MD premastering or mastering system which incorporates a PCM-1630 Digital Audio Processor. The DABK-9004 also allows a PCM-9000 to be connected to a DAE-3000 Digital Audio Editor (with the DABK-3002). However, if the DAE-3000 is already fitted with a DABK-3005, the DABK-9004 is not necessary

DABK-9005
SCSI Interface Board

Required to configure an editing system which incorporates several PCM-9000 machines. Up to eight units, each PCM-9000 fitted with a DABK-9005 SCSI interface board, can be controlled by an RM-D9000. One PCM-9000 can be assigned as a recorder unit. Double-speed copying is also available via the SCSI interface

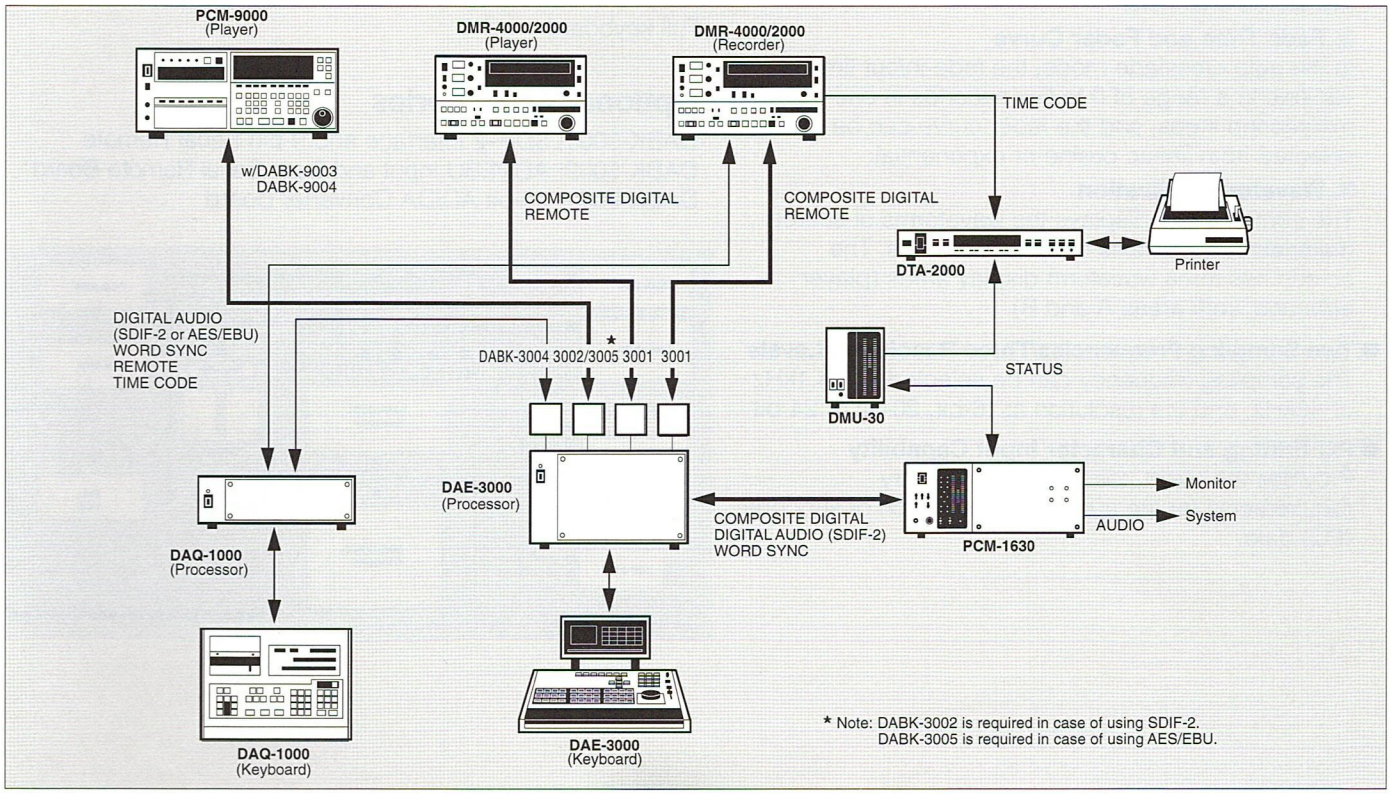
DABK-9006
DAQ-1000 Interface Board

Enables the PCM-9000 to interface with a conventional DAQ-1000 PQ editing system. When the PCM-9000 is connected to the K-1216 format converter through the DABK-9006, an MD mastering system can be implemented

DABK-9007
Memory Board

The DABK-9007 is able to store ten seconds of digital audio data. This feature is essential for non-linear editing. Digital jog sound in the jog mode is also available. The DABK-9007 provides editing to an accuracy of one sample

SYSTEM CONFIGURATION



Disc Mastering System

DAE-D5000

● **Editing Modes**

1. Non-linear Editing

The DAE-D5000 has been primarily designed to operate with the PCM-9000 Master Disc Recorder for non-linear editing. Up to six PCM-9000 machines or external hard disc drives can be controlled via its built-in SCSI port.

2. Copy Editing

The DAE-D5000 can operate as a tape-based copy editor with a PCM-1630/DMR-4000 system in CD pre-mastering applications via an optional interface. Editing accuracy is within one word.

● **Editing Features**

1. Three Automation Faders and Level Control;

A, B and MASTER for manual crossfading and mixing two stereo channels.

2. Fade Time and Fader Curve

In the auto crossfade mode, the fade-in/out time is variable in a range of 0 to five seconds in one millisecond steps, and the fader curve can be selected from linear, cosine or exponential.

3. Waveform Indication

The control panel displays the waveforms of source material on a time axis of up to two hours. The screen has three waveform display areas (player area and work areas A and B).

● **Two Sampling Frequencies/Three Resolution Levels**

The sampling frequency can be selected as 44.1kHz or 48kHz, and the resolution as16-bit, 20-bit or 24-bit.

● **PQ Editing and Character Input Capability**

Provides the event point search and entry requirements for the automatic generation of subcode (PQ) data.

● **Double Speed Processing EQ and Dynamics**

The DAE-D5000 incorporates a four-band equalizer and dynamics, with double speed processing capability as standard. This allows double speed copying via the SCSI interface.

● **AES/EBU AUX Send/Return and Insertion Input/Output**

● **3.5-inch Floppy Disk Drive** for upgrading software and data such as edit lists, CD subcode data, fader data, personal set-up data and equalizer and dynamics parameters.

● **External CRT Monitor Display**

● **32-segment LED Type Meter**

● **SCSI Interface**

Allows the connection of up to six pieces of equipment with a SCSI port, such as the PCM-9000 (with DABK-9005 option) and hard disk drives.

● **SDIF-2 Interface & 9-Pin Serial Remote**

The optional DABK-5001 board provides an SDIF-2 interface and a 9-pin serial remote interface.

● **AES/EBU Inputs & 9-pin Serial Remote**

The optional DABK-5002 board is equipped with three AES/EBU input connectors and three 9-pin serial remote interface connectors.

● **Dual use of the DABK-9001**

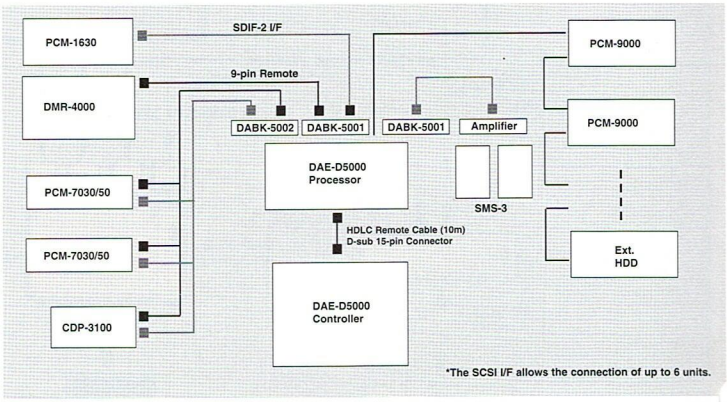
The optional DABK-9001 is a 20-bit AD/DA converter board which is also used as an option for the PCM-9000.

Supplied Accessories

Operation manual
Maintenance manual
HDLC Remote cable (10m)
AC power cable (x2)
Full keyboard

Optional Accessories

DABK-5001: SDIF-2 Interface and 9-pin Serial Remote
DABK-5002: AES/EBU Input and 9-pin Serial Remote Board
DABK-9001: 20-bit AD/DA Converter Board



Specifications

Digital Audio Signal

Digital audio channels:	2 channels (stereo)
Sampling frequency:	48kHz or 44.1kHz selectable

Editing Performance

Editing accuracy:	1 word with PCM-9000 or PCM-1630+DMR-4000 Less than 1ms with other machines

Digital Inputs

AUX RETURN:	AES/EBU, XLR-3-31 type (x1)
INSERTION:	AES/EBU, XLR-3-31 type (x1)
LINE IN:	SDIF-2 BNC type (x2), W/DABK-5001, AES/EBU, XLR-3-31 type (x3), W/DABK-5002

Digital Outputs

AUX SEND:	AES/EBU, XLR-3-32 type (x1)
INSERTION:	AES/EBU, XLR-3-32 type (x1)
MONITOR:	AES/EBU, XLR-3-32 type (x1)
LINE OUT:	SDIF-2 BNC type (x2), W/DABK-5001

Analog Inputs/Outputs

LINE IN:	2ch, +4dBu (+26dBu max.), adjustable range of -6dBu to +6dBu, 20kΩ/600Ω selectable, balanced, XLR-3-31 type (x2), W/DABK-9001
LINE OUT:	2ch, +4dBu (+26dBu max.), adjustable range of -6dBu to +6dBu, 60Ω, balanced, XLR-3-31 type(x2), W/DABK-9001
MONITOR OUT:	2ch, +4dBu (+26dBu max.), adjustable range of -6dBu to +6dBu, less than 50Ω, balanced, XLR-3-32 type (x2)

Other Inputs/Outputs

Time code IN:	SMPTE/EBU, 0.5 to 10Vp-p, 10kΩ, balanced, XLR-3-32 type (x3), W/DABK-5002
Word sync IN:	More than 3Vp-p, 75Ω, BNC type
Word sync OUT:	TTL compatible, 75Ω, BNC type
Cue data IN:	1.2 to 10Vp-p, 10kΩ, balanced, XLR-3-31 type (x1)
Cue data OUT:	2.4±0.2Vp-p, 10kΩ, balanced, XLR-3-32 type (x1)
Composite Digital (Video) IN:	0.7±0.14Vp-p, 75Ω, unbalanced, BNC type, W/DABK-5001
Serial remote:	RS-422, D-sub 9-pin (x1), W/DABK-5001 RS-422, D-sub 9-pin (X3), W/DABK-5002
Computer I/F:	RS-232C, D-sub 9-pin (x1)
SCSI I/F:	Amphenol 50-pin (x1)
Printer I/F:	TTL compatible, parallel, D-sub 25-pin (x1)
HDLC:	RS-422, serial, D-sub 15-pin (x1)
Full keyboard:	TTL compatible, DIN 5-pin
Analog RGB:	RS-343A, D-sub 9-pin

Equalizer

HF:	Frequency range;	1.3kHz to 17.4kHz
	Gain range;	±15dB in 0.5dB steps
	Q type;	Shelving/peaking type selectable 0.7/1.4/2.5 selectable
HMF:	Frequency range;	648Hz to 8.7kHz
	Gain range;	±15dB in 0.5dB steps
	Q type;	Peaking type 0.7/1.4/2.5 selectable
LMF:	Frequency range;	193Hz to 2.6kHz
	Gain range;	±15dB in 0.5dB steps
	Q type;	Peaking type 0.7/1.4/2.5 selectable
HMF:	Frequency range;	31kHz to 420kHz
	Gain range;	±15dB in 0.5dB steps
	Q type;	Shelving/peaking type selectable 0.7/1.4/2.5 selectable

Filter

High cut:	Cut-off frequency;	1.3kHz to 17.4kHz
	Roll-off characteristics;	12dB/oct
Low cut:	Cut-off frequency;	21Hz to 330Hz
	Roll-off characteristics;	12dB/oct

Dynamics

Limiter/Compressor	Threshold level;	0 to -60dB
	Attack time;	30µs to 300ms
	Release time;	30ms to 3s
	Ratio;	1:1 to ∞(100):1
	Gain make;	0 to 30dB
Expander/Gate:	Threshold level;	0 to -60dB
	Attack time;	1µs to 10ms
	Release time;	30ms to 3s
	Ratio;	1:1.1 to 1:10
	Gain make;	0 to -60dB

Other Performance

Level control:	Fader;	+6dB to -∞ or +12dB to -∞ selectable
	Balance;	0 to -3dB or 0 to -6dB selectable
Crossfade:	Curves;	Linear, cosine, exponential selectable
	Time;	0 to 5000ms in 1ms steps

General

Power requirements:	AC 85V to 132V / 170V to 265V	
Power consumption:	Processor;	110W
	Control panel;	40W
Dimensions:	Processor;	424(W) x 221(H) x 491(D) mm (16 3/4 x 8 3/4 x 19 3/8 inches)
	Control panel;	610(W) x 221(H) x 484(D) mm (24 1/8 x 5 5 5/8 x 19 1/8 inches)
Weight:	Processor;	18kg (39 lb 11 oz)
	Control panel;	12kg (26 lb 7 oz)

Super Bit Mapping Processing Unit

K-1203

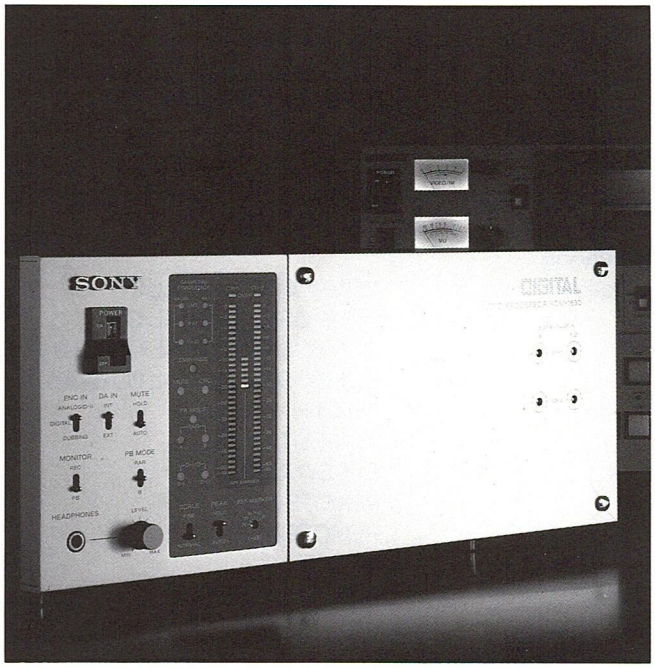
- Super Bit Mapping® processing for two channels using a single processor unit
- Two types of digital I/O, SDIF-2 and AES/EBU are provided, with the capability of combining different types of inputs and outputs.
- Compatible with three sampling frequencies: 48kHz, 44.1kHz, 44.056kHz
- Compact and lightweight design for easy installation

Specifications

Input:	Up to 24-bit
Output:	SBM 16-bit data/input through selectable
Sampling frequency:	48/44.1/44.056kHz selectable
Digital IN:	ABS/EBU, XLR-3-31 type (x1) SDIF-2, BNC (x2)
Digital OUT:	ABS/EBU, XLR-3-32 type (x1)
Word sync IN/OUT:	TTL level, 75Ω terminated, BNC (X1)
Power requirements:	AC 100-120V, 220-240, 50/60Hz
Power consumption:	30W
Dimensions:	424(W) x 44 (H) x 330 (D) mm (16 3/4 x 1 3/4 x 13 inches)
Weight:	5kg (11lb)
Supplied accessories:	AC power cable (x1) Operation manual (x1)

Digital Audio Processor

PCM-1630



- 2-channel digital audio processor with 16-bit linear quantization
- Switchable 44.1kHz and 44.056kHz sampling frequencies
- RAR (Read-After-Read) function using optional DABK-1630 board and DMR-4000 recorder

Supplied Accessories

AC power cable
BNC cable (x 2)
8-pin to 8-pin cable
Extension board
Rack mount adaptor (x 2)

Optional Accessories

DABK-1630

RAR Board

- Enables RAR and dub/edit RAW when used in PCM-1630 combined with DMR-4000

DABK-1631

Digital I/O Board

- Interfaces PCM-1630 with AES/EBU standard digital equipment

Specifications

Number of channels:	2 (stereo)
Modulation system:	PCM system using NTSC standard TV signals
Sampling frequency:	44.1kHz or 44.056kHz
Quantization:	16-bit linear
Signal-to-noise ratio:	More than 90dB
Frequency response:	20Hz to 20,000Hz +0.5dB/-1.0dB
Total harmonic distortion:	Less than 0.05% (at reference input level)
Wow and flutter:	Below measurable limit
Inputs/outputs:	ANALOG IN CH-1 (D-I)/CH-2 ANALOG OUT CH-1 (D-O)/CH-2 COMPOSITE DIGITAL IN COMPOSITE DIGITAL OUT COMPOSITE DIGITAL I/O COMPOSITE SYNC IN COMPOSITE SYNC OUT DIGITAL I/O WORD SYNC IN WORD SYNC OUT STATUS OUT HEADPHONE OUT
Power requirements:	AC 100/120/220/240V ±10%, 50/60Hz, selectable
Power consumption:	90W max.
Dimensions:	424(W) x 200(H) x 530(D)mm (16 3/4 x 7 7/8 x 10 7/8 inches)
Weight:	26kg (57 lb 5 oz)

Digital Master Recorder

DMR-4000

- Additional confidence heads for RAW (Read-After-Write)
- Two composite digital outputs (MAIN/SUB) for connection to PCM-1630 with DABK-1630 for reliable RAR (Read-After-Read) operation that minimizes the effect of code errors on the reproduced sound

Supplied Accessories

AC power cable
8-pin to 8-pin cable
9-pin to 9-pin cable
Extension board

Optional Accessories

DAU-30/60/75
Digital Audio Master Cassette
(30, 60, 75 minutes)

Specifications

Audio Performance

Recording System:	Rotary 2-head system, helical scanning, FM recording
Signal format:	EIA standard
Usable tapes:	DAU series audio master cassettes (DAU-30/DAU-60/DAU-75)
Tape speed:	9.53cm/s
Recording time:	75 min (with DAU-75)
Number of channels:	PCM audio (x 2), AUX (analog)(x 2), and CTL (X 1)

Interfacing

Inputs/outputs:	COMPOSITE DIGITAL IN COMPOSITE DIGITAL OUT COMPOSITE DIGITAL OUT B-3 COMPOSITE DIGITAL I/O (8-pin) AUX IN AUX OUT EXT SYNC IN REMOTE-1 REMOTE-2 RF OUT HEADPHONES OUT

Special Functions

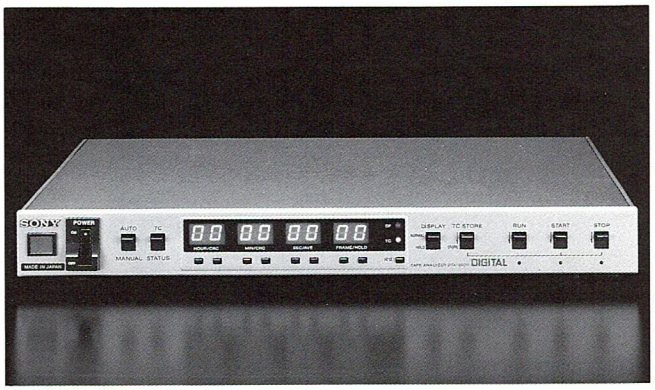
Shuttle:	1/30 to 10 times normal speed, variable
Time code generator/ reader:	REGEN/REC RUN/FREE RUN (selectable) drop frame or non-drop frame
Simple editing:	± 2 frame accuracy
Head cleaner:	Activated in every 5 min in record and play modes
Long pause mode:	1.5 min

General

Power requirements:	AC 100/120/220/240V, 50/60Hz, selectable
Power consumption:	150W (at AC 100V)
Dimensions: (W x H x D)	454 x 283 x 550mm (17 7/8 x 11 1/4 x 21 3/4 inches)
Weight:	37kg (81 lb 9 oz)

Digital Tape Analyzer

DTA-2000



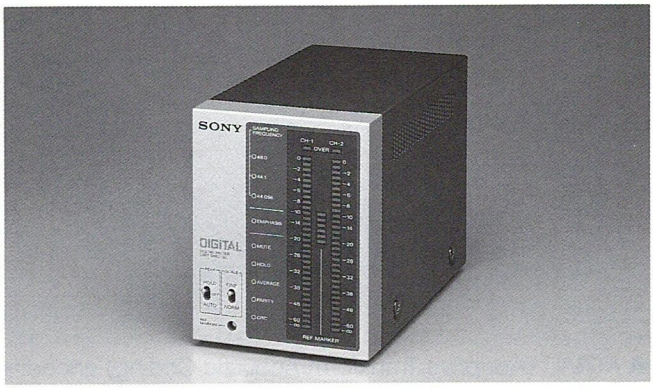
- Allows testing of the tape recorded with PCM-1630 system
- Connects to any printer with Centronics compatible interface for printing out a sequential list of CRC, Average, Hold, Mute and Parity errors as well as the sampling frequency, time code mode (drop frame/non-drop frame), time code jump and emphasis ON/OFF
- Error status/time code display
- Selectable operation mode — Auto or Manual

Supplied Accessories

33-pin to 36-pin cable
25-pin to 25-pin cable
36-pin to 36-pin digital cable (x 2)
Rack mount adaptor (x 2)
Rail bracket (x 4)
AC power cable

Digital Meter Unit

DMU-30



- For use with PCM-1630 CD mastering system, PCM-3402 2-channel digital audio recorder, BVH-2800 1-inch VTRs with digital sound and other digital audio equipment
- Power requirements: AC 100 to 240V, 50/60Hz
- Power consumption: 12W
- Dimensions: 105(W) x 132(H) x 190(D)mm (4 1/4 x 5 1/4 x 7 1/2 inches)
- Weight: 2.5kg (5 lb 8 oz)

Supplied Accessories

D-sub 25-pin cable (10m)
AC power cable

SECTION 7

Specifications

Output information:	CRC, average, hold, mute, parity, time code discontinuity, time code mode (DF or NDF), emphasis (ON/OFF), and sampling frequency (44.1kHz or 44.056kHz)
Inputs/outputs:	TIME CODE IN STATUS IN PRINTER OUT VTR REMOTE I/O
Power requirements:	AC 100 to 120V/220 to 240V, 50/60Hz, selectable
Power consumption:	20W
Dimensions:	424(W) x 44(H) x 330(D)mm (16 3/4 x 1 3/4 x 13 inches)
Weight:	4.5kg (9 lb 15 oz)

Format Converter

K-1216

- ATRAC (Adaptive Transform Acoustic Coding) encoding with high performance data compression.
- ATRAC decoding with simultaneous sound monitoring capability.
- Subcode data transfer from a CD master tape
- Input and revision of text data information such as track title.
- Format conversion of compressed audio and subcode data, and generation of MD master tape signal.
- Subcode data confirmation by CRT display and printer output.

Specifications

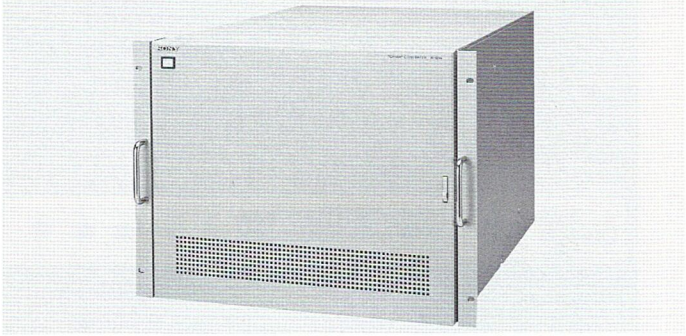
Dimensions:	424(W) x 354(H) x 550(D) mm (16 3/4 x 14 x 21 3/4 inches)
Weight:	Approx. 31 kg. (68 lb 5 oz)
Power Requirements:	AC 100 to 240V
Power Consumption:	250VA
Supplied Accessories:	AC Power Cable (x 1) Keyboard (x 1) Operation Manual (x 1)

Inputs/Outputs

PQ CUE IN (A1):	+4dBs (+24dBs max.) 40kΩ balanced, XLR-3-31 type (x 1)
Encoder IN:	SDIF-2 (CH-1/CH-2); TTL compatible 75Ω unbalanced, BNC (x 2)
Encoder OUT:	SDIF-2 (CH-1/CH-2); TTL compatible 75Ω unbalanced, BNC (x 2) AES/EBU; RS-422, XLR-3-32 type (x 1)
Monitor IN:	SDIF-2 (CH-1/CH-2); TTL compatible 75Ω unbalanced, BNC (x 2)
Monitor OUT:	AES/EBU; RS-422, XLR-3-32 type (x 1)
Word Sync IN:	TTL compatible, 75Ω unbalanced, with loop-through and 75Ω termination switch, BNC (x 2)
Reference Video IN:	Black Burst/Composite Sync/ Composite Video 75Ω unbalanced, with loop-through and 75Ω termination switch, BNC (x 2)
Beep OUT:	Phono jack (x 1)
Remote:	D-Sub 9-pin (female) (x 1)
Keyboard:	D-Sub 9-pin (female) (x 1)
Display: Analog RGB; Digital RGB;	D-Sub 9-pin (female) (x 1) D-Sub 9-pin (female) (x 1)
Printer:	D-Sub 25-pin (female), ESC/P Protocol (x 1)
RS-232C:	D-Sub 25-pin (female) (x 1)

Address Generator

K-1217



- Automatic MD subcode data generation
- Transport control with time code readout through 9-pin remote interface.
- Host computer interface through parallel input/output for use with a cutting machine.

Specifications

Dimensions:	424(W) x 177(H) x 550(D) mm (16 3/4 x 7 x 21 3/4 inches)
Weight:	Approx. 14 kg. (30 lb 14 oz)
Power Requirements:	AC 100 to 240V
Power Consumption:	50VA
Supplied Accessories:	AC Power Cable (x 1) Operation Manual (x 1)

Inputs/Outputs

Input:	SDIF-2 (CH-1/CH-2); TTL compatible 75Ω unbalanced, BNC (x 2)
Output:	SDIF-2 (CH-1/CH-2); TTL compatible 75Ω unbalanced, BNC (x 2)
Subcode IN (PQ):	RS-422, D-sub 15-pin (x 1)
Subcode OUT (PQ):	RS-422, D-sub 15-pin (x 1)
Word Sync IN:	TTL compatible, 75Ω unbalanced, with loop-through and 75Ω termination switch, BNC (x 2)
Block Sync IN 75Hz:	TTL compatible, 75Ω unbalanced, BNC (x 1)
Frame Sync IN 7.35kHz:	TTL compatible, 75Ω unbalanced, BNC (x 1)
CD/MD Status OUT:	Relay Contact, BNC (x 1)
Reference Video IN:	Black Burst/Composite Sync Composite Video 75Ω unbalanced, BNC (x 1)
Host CPU IN:	36-pin Amphenol type (female) (x 1)
Host CPU OUT:	36-pin Amphenol type (female) (x 1)
Remote:	D-Sub 9-pin (female) (x 1)
Display: Analog RGB; Digital RGB;	D-Sub 9-pin (female) (x 1) D-Sub 9-pin (female) (x 1)
Printer:	D-Sub 25-pin (female), ESC/P Protocol (x 1)
RS-232C:	D-Sub 25-pin (female) (x 1)

SECTION 8

Digital System Integration Equipment

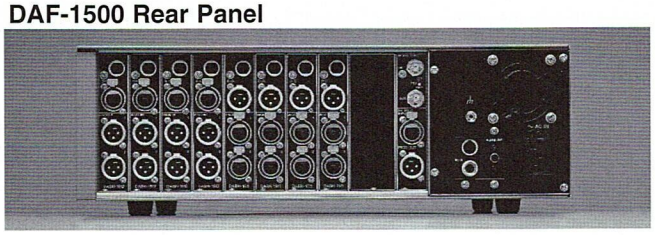
DAF-1500 Audio Frame....8-1
DABK-1510/1511 Option Boards....8-1
DABK-1512/1513/1514/1515 Option Boards....8-1
DABK-1517 Option Board....8-1

Digital Audio Frame

DAF-1500

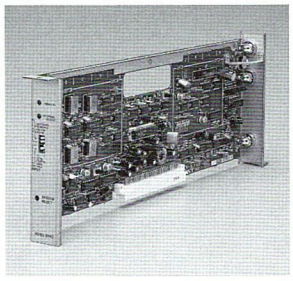
- Ideally suited for large analog converter configurations along with Sony DMX Series digital mixing consoles
- Provides 8 slots, allowing flexible configurations.

DAF-1500 Rear Panel



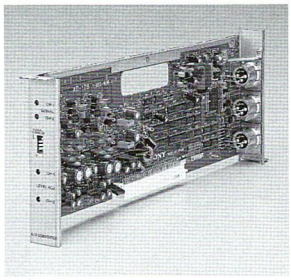
Optional Boards

DABK-1510 Video Reference Board



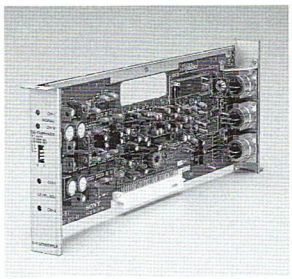
- Can be installed into a DAF-1500 digital audio frame in place of the word clock and AES/EBU DI sync board.
- Locks the AES/EBU output signals to an NTSC/PAL video signal or black burst, or to an HDVS video signal.

DABK-1511 Analog-to-Digital Converter



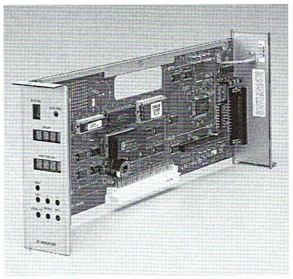
- Converts two balanced analog audio signals into the AES/EBU signal format at 20bits/sample.
- Sampling frequency selectable from 48kHz, 47.952kHz, 44.1kHz or 44.056kHz.

DABK-1512 Digital-to-Analog Converter



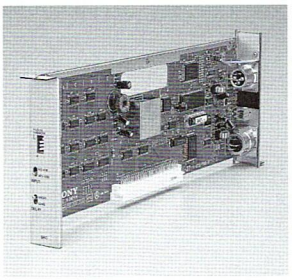
- Converts an AES/EBU signal into two balanced analog audio signals at 20-bits/sample.
- Accepts signals with sampling frequencies of 48kHz, 47.952kHz 44.1kHz or 44.056kHz.

DABK-1513 AES/EBU ID Insetter Board



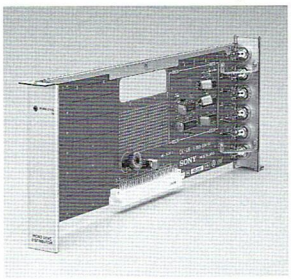
- Adds source/destination data to the channel status of the AES/EBU digital output signal from a DABK-1511 A/D converter board and DABK-1514 sampling rate converter board.
- Interfaces with up to eight DABK-1511 or DABK-1514 boards.
- Source/destination data input via an RS-232C connector.

DABK-1514 Sampling Rate Converter Board



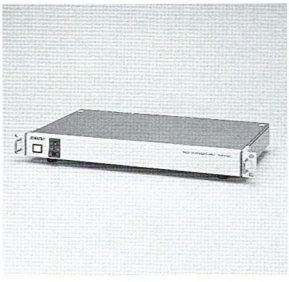
- Converts any sampling frequency between 22.03kHz and 64kHz into any one of the following frequencies; 44.056kHz, 44.1kHz, 47.952kHz and 48kHz.
- The digital input signal is selectable from AES/EBU or IEC-958 format. The output signal is in AES/EBU format and the output sampling frequency can be selectable from 44.056kHz, 44.1kHz, 47.952kHz or 48kHz.

DABK-1515 Word Sync Distribution Board



- Equipped with a word sync input connector with loop-through and four distribution output connectors. All connectors are BNC type.
- Built-in green LED indicator confirms word sync input is present.

DABK-1517 Back-up Power Supply Unit



- Connects to the DC input connector of a DAF-1500 frame with a supplied 0.7m DC cable.
- 1 unit high, 19-inch EIA standard, rack mountable frame.

SECTION 9

Audio Mixers & Consoles

Edit Suite Mixers

Digital

DMX-E2000 Digital Audio Mixer 9-1
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DMX-E3000 16-Channel Digital Audio Mixer 9-3
DMBK-3000 Equalizer/Filter Unit 9-3

Analog

MXP-290 8-Channel Audio Mixer 9-4
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Production Consoles

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Analog

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MXBK-6103 Master 2 Module 9-10
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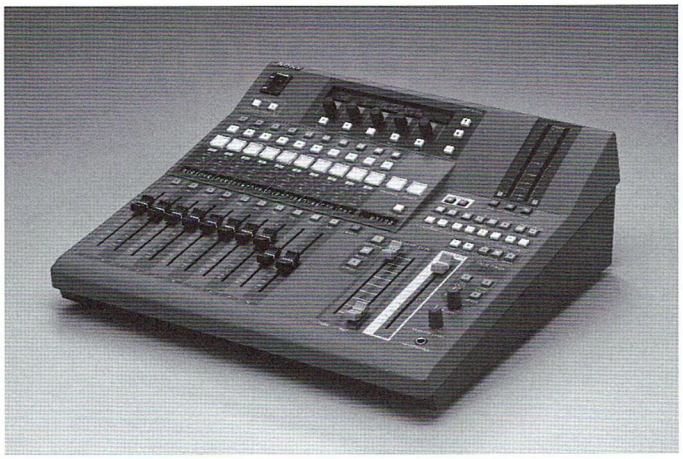
MultiTrack Mixing Consoles

DMX-S6000 Digital Console 9-12
Specifications 9-13

Digital Audio Mixer

DMX-E2000



- 16ch inputs conforming to the AES/EBU digital format allow connection of up to four Digital Betacam™ VTRs or other digital audio equipment
- 4ch AUX inputs allow connection with other digital audio equipment, such as DAT recorders and CD players. In addition, when using the optional MIC/LINE Input Unit, each MONO input is assignable to any of the ten faders.
- 2 x 4 matrix PGM outputs–8 AES/EBU output connectors provides a total of four sets of PGM buffered outputs. This enables the DMX-E2000 to supply PGM outputs for up to four digital VTRs.
- 2ch AUX SEND outputs permit direct connection of external digital effects equipment for enhanced stereo digital effects control
- 2ch analog monitor outputs
- Audio delay control range of 0 to 4.9 frames in 0.1 frames steps
- Flexible Transition Control
  Manual Control: Capable of manual transition, using the PGM/PST faders. In addition, the Fader Learn function allows making any fader curve possible by memorizing and recalling manual movement of PGM/PST faders.
  Editor Control: For audio-follow-video type crossfades under control of the editor system.
- Built-in back mic & individual analog talk back outputs
- Depth-of-fade control incorporated into the level set in each channel
- Versatile remote control facility: Parallel remote control interface connectors allow external remote control of transition start, crossfader control and monitor level control functions. D-sub 9-pin serial remote interface conforms to the ESAM II Extended Protocol.
- Up to 99 snapshot memories can be stored. Each snapshot memorizes channel fader positions, program bus assign switch settings, crossfade time, audio delay setting, EQ and filtering setups, etc.
- Assignable 3 band EQ and selectable High Pass/Notch Filter standard
- Signal processing can be locked to a video or audio reference NTSC/PAL video signal, either composite or black burst or word sync reference signal.
- Selectable sampling frequencies, 48kHz or 44.1kHz.
- All-in-one, 19-inch width unit
- Phase reverse function
- Self-diagnostic function for maintenance

Optional Accessory

DMBK-2000 MIC/LINE Input unit

No. of channels	2ch	
A/D Converter Quantization:	20 bits/sample	
Frequency Response:	MIC:	30Hz to 20kHz within +0dB/-0.5dB
	LINE:	20Hz to 20kHz within +0dB/-0.5dB
Total Harmonic Distortion:	MIC:	Less than 0.3%
	LINE:	Less than 0.1%
Cross Talk:	More than 70dB (at 8kHz)	
Equivalent Input Noise:	MIC:	More than 128dB

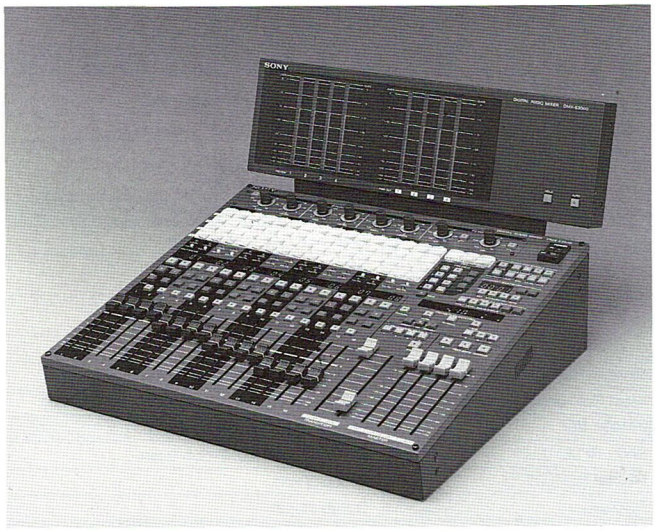
Specifications
DMX-E2000

Inputs	
Digital Audio:	16ch, AES/EBU, XLR-3-31 type (x8)
AUX.	4ch, AES/EBU, XLR-3-31 type (x2)
Outputs	
PGM (2x4 Matrix)	4ch x4 (buffered out), AES/EBU, XLR-3-32 type (x8)
AUX SEND:	2ch, AES/EBU, XLR-3-32 type (x1)
Preview (Analog):	2ch, XLR-3-32 type (x1) +4dBu(+24dBu Max) 600Ω, balanced at 1kHz
Reference	
Video Reference Input:	BNC type (x2), loop-through
Video signal:	25Hz (PAL), 29.97Hz (NTSC) 30Hz (EIA Black and White)
Sync Signal:	Composite sync, black burst or Composite video
Termination:	75Ω
Word Reference Input:	BNC type (x1), TTL level (at 75Ω termination)
Word Reference Output (buffered):	BNC type (x1), TTL level (at 75Ω termination)
Remote I/O	
Serial REMOTE:	ESAM II Extended, D-Sub 9-pin
Parallel REMOTE:	D-Sub 50-pin
RS-232C:	D-Sub 25-pin
Audio	
Sampling Frequency:	48kHz/44.1kHz
Monitor Output Characteristics	
Frequency Response:	20Hz to 20kHz within +0.2dB/-0.5dB
Total Harmonic Distortion:	Less than 0.02%
Dynamic Range:	More than 105dB
Cross Talk:	less than 90dB
Equalizer	
High Frequency (Shelving type) Frequency range: Gain range: Q:	 1kHz to 16kHz ±15dB 0.7 fixed
Mid Frequency Frequency range: Gain range: Q:	 200Hz to 3.2kHz ±15dB 0.7 fixed
Low Frequency Frequency range: Gain range: Q:	 20Hz to 320kHz ±15dB 0.7 fixed
Filter (Selectable)	
High Pass Filter Cut off Frequency Roll off characteristics:	 20Hz to 330Hz 12dB/oct
Notch Filter Cut off Frequency:	 50/60/100/120Hz selectable
General	
Built-in Oscillator Frequency: Output Level:	 400Hz/1kHz/8kHZ/12kHz -10dB to -24dB, variable
Meter Level meters:	 101 segment LED bargraphs (x2)
Power Requirements:	AC100/120/220/240V, 50/60Hz
Power Consumption:	60W
Dimensions:	424(W) x 130(H) x 400(D)mm (16 3/4 x 5 1/8 x 15 3/4 inches)
Weight:	15kg (33 lb 1 oz)

* 0dBu=0.775V r.m.s.

16-Channel Digital Audio Console

DMX-E3000



- Fully digital audio console designed for DVTR based video post production
- 16 into four configuration with additional 32 x 16 input router
- Control surface and signal processing matches the style of video switchers
- AES/EBU I/O ports, direct connection to DVTRs, PCM-3402, DAT etc.
- Video style monitoring with four internal preview buses and analog outputs via 20-bit D/A converters
- Optional EQ processing (3-band with HP and LP filters)
- Phase inversion and programmable delay (0-9.9 frames)
- Editor, auto and manual crossfade modes
- Assignable audio insert send and return
- Supports 48kHz (DVTR audio), 47.998kHz (HDVS transfer), 44.1kHz (CD) sample rates
- Video, word, DI inputs and Word output sync
- Serial video edit controller interface (Sony Serial and ESAM II)
- Parallel interface for GPIs and remote control
- Snapshot automation with 99 audio registers

Supplied Accessories

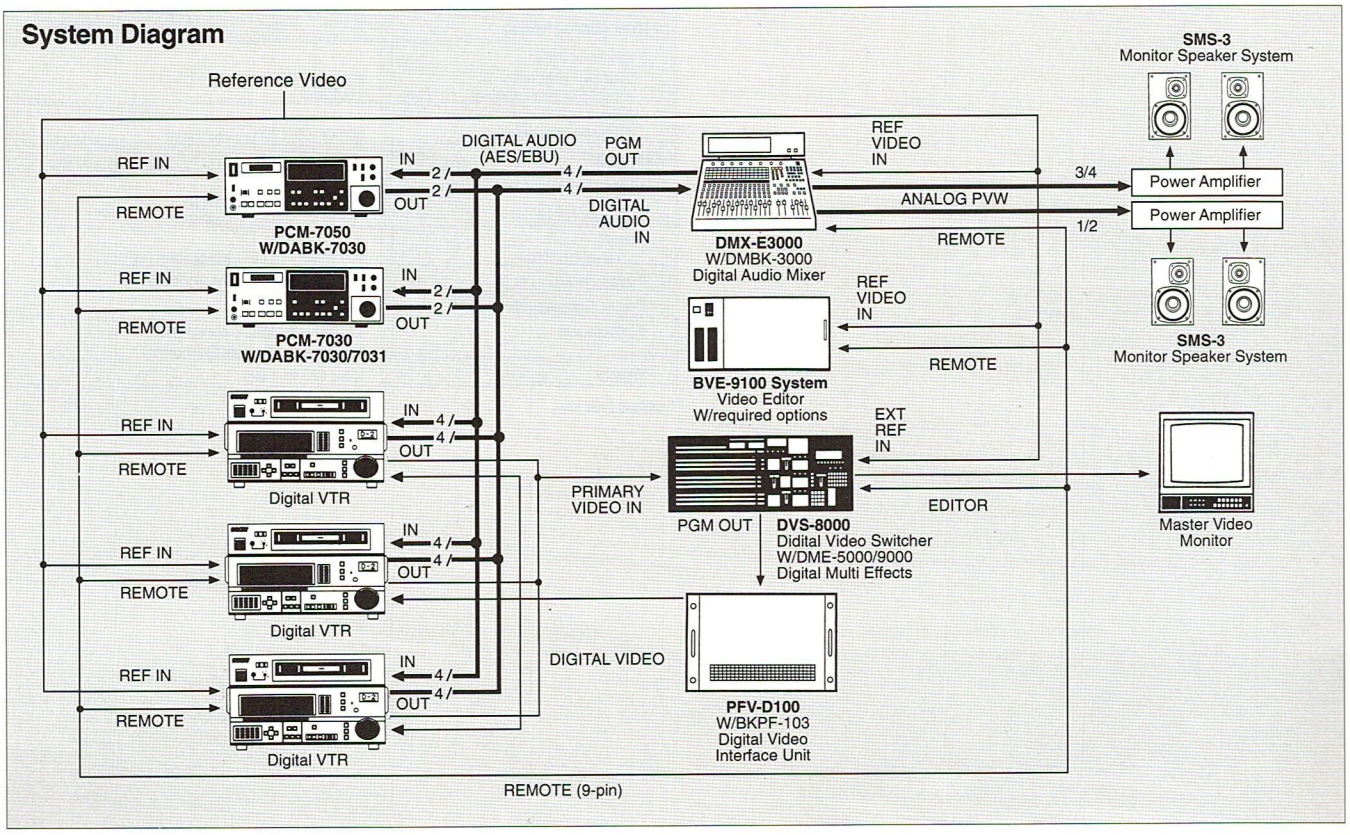
Connecting cable (control panel/processor), 30m
Connecting cable (control panel/meter bridge), 10m
Rack Mount Kit
Meter housing installation kit
Operation and maintenance manual

Optional Accessory

DMBK-3000

Equalizer/filter unit
Equipped with the DMBK-3000, the DMX-E3000 provides assignable control of equalizer along with low/high cut filters.

System Diagram



12-Channel Post Production Console

MXP-S390/MXP-P390

MXP-S390, Serial (ESAM II) Interface
MXP-P390, Parallel (BVE-910/9100) Interface

- Analog audio consoles for video post production
- 4 mono, 8 stereo inputs, 4 program, 4 auxiliary and 4 monitor outputs
- Wide range of inputs; microphone, balanced line, unbalanced line
- Advanced machine assignable using the configuration and preview switches
- Unique monitoring capabilities with monitor switching matrix
- Video edit control of crossfades and monitoring
- Depth-of-fade control and local switch for each input channel

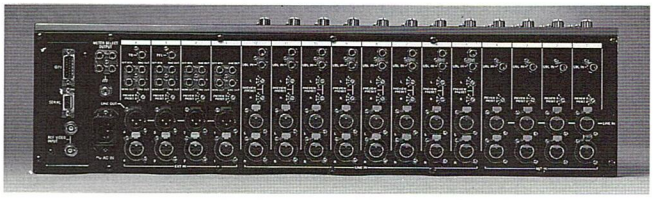
Additional MXP-S390 Features with Serial Interface

- Three crossfade modes (editor, auto and manual)
- Dedicated manual crossfader
- Four selectable crossfade laws

Supplied Accessory

Operation and maintenance manual

MXP-S390



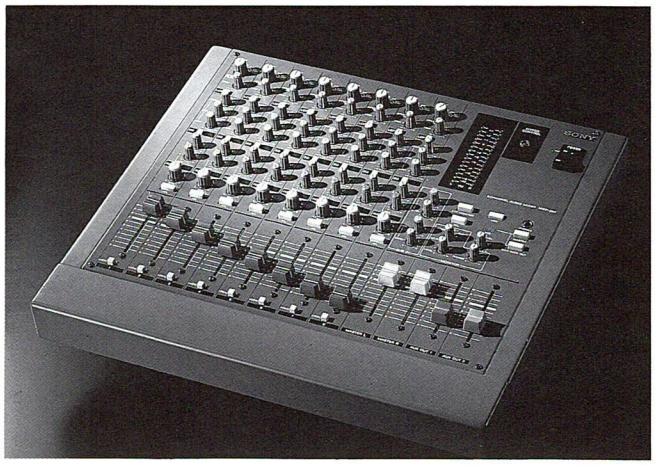
Optional Accessories

MXBK-S390
Serial Interface Kit for upgrading MXP-P390 to MXP-S390

MXBK-TK390
Table Kit

8-Channel Audio Mixer

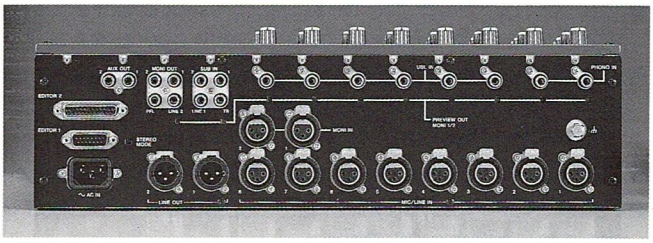
MXP-290



- Suitable for video editing application in broadcast and video post production
- Video editor control over VCA gain, preview switcher and monitor output mute via parallel 15-pin and 25-pin connectors
- Local switchable-channel to disable editor control
- Wide range of inputs: 8 channels of balanced MIC or LINE, unbalanced line (6 channels) and phono (2 channels)
- 30dB trim on microphone and balanced line inputs
- DC 48V external power switch on microphone channel
- 3-band EQ, 2 AUX sends and PFL on each channel
- Two sub-inputs with level and panpot control
- Two external monitor inputs and switch
- Separate L and R master faders
- Two 15-segment VU meters
- 1kHz test tone oscillator
- Talkback microphone, talkback output and "talk to master" switch
- Headphone amplifier

Supplied Accessory

AC power cable



Optional Accessories

MXBK-200
19-inch Rack Mount Adaptor

MXBK-201
Table Kit

Digital Audio Mixer

DMX-B4000 Series

DMX-B4008

DMX-B4016

- Two models, the DMX-B4008 and the DMX-B4016
- Use digital signal processing throughout to maintain audio quality
- DMX-B4008 accepts up to 16 stereo audio signals. Equipped with a 16 x 8 input switching matrix and 8 input stereo faders.
- DMX-B4016 accepts up to 30 stereo audio signals. Equipped with a 30 x 16 input switching matrix and 16 input stereo faders.
- DMX-B4016 can be upgraded to a total of 24 input faders by adding the optional DMBK-4010
- DMX-B4008/B4016 are respectively equipped with a 16 x 8 (AES/EBU) / 30 x 16 (AES/EBU) input switching matrix, linked to the snapshot automation function.
- The internal signal processing of the DMX-B4000 Series is at a remarkable 32-bit resolution. This provides output signals of 24-bit precision, the highest that the AES/EBU format allows. Sampling frequencies can be selected to to be 44.056kHz, 44.1kHz or 48kHz.
- User friendly touch screen operation enables all console settings to be adjusted, including the assignable signal processing functions of high and low fixed filters, phase invert, three-band equalizer, panpot, auxiliary level and input trim.
- Console functions can be set at three different access levels to match their availability to the operator's skill
- Except for control panel faders, all console settings for up to 99 scenes can be stored onto a 3.5 floppy disk via a built-in floppy disk drive.
- Back-up power supply ensures continuity of operation
- Fader Start Function and start/stop switch are linked to the input switching matrix
- All input channels are equipped as standard with a three-band equalizer
- Features two shelving type controls and a peaking type control
- High and low cut filters are standard
- DMX-B4016 has limiter/compressors on the PGM and MIX outputs as standard
- Analog monitor / PGM outputs with built-in 20-bit D/A converter for studio and control room monitoring
- Provides control of up to six players and a recorder
- 20-bit A/D microphone/line input module includes two channels 20-bit A/D converters and microphone/line amplifiers.The DMX-B4008 can accept two DMBK-4012 modules, while the DMX-B4016 can accommodate up to four.

Optional Accessories

DMBK-4001: Machine Controller

DMBK-4002: Mixer Stand

DMBK-4003: VU Meter Panel

DMBK-4004: Blank Panel

DMBK-4005: Table Kit for DMX-B4008

DMBK-4006: Table Kit for DMX-B4016

DMBK-4007: Back-up Power Supply Unit for DMX-B4008 Processor Unit

DMBK-4008: Back-up Power Supply Unit for DMX-B4016 Processor Unit

DMBK-4009: Back-up Power Supply Unit for DMX-B4000 Series Control Panel Unit

DMBK-4010: Input Extension Kit

DMBK-4011: Output Extension Kit

DMBK-4012: 20-bit A/D Microphone/Line Input

Specifications
DMX-B4000

		DMX-B4008	DMX-B4016
Audio Performance	Sampling Frequencies	48kHz, 44.1kHz, 44.056kHz	
	Frequency Response	20Hz to 20kHz within +0.2dB/-1.0dB at -20dBFs	
	Harmonic Distortion	Less than 0.02% at -20dBFs, 1kHz	
	Dynamic Range	More than 100dB	
	Equivalent Input Noise	MIC: Less than -126dBu, 150Ω terminated LINE: Less than -80dBu, 600Ω terminated	
	Crosstalk:	More Than 60dB at 15kHz	
Digital Inputs	Matrix Switcher Inputs	16 Stereo, AES/EBU, XLR-3-31 type (x16)	30 Stereo, AES/EBU, XLR-3-31 type (x30)
	Monitor	—	5 Stereo, AES/EBU, XLR-3-31 type (x5)
	Insertion Return	1 Stereo, AES/EBU, XLR-3-31 type (x1)	2 Stereo, AES/EBU, XLR-3-31 type (x2)
	ID/TB	—	1 Stereo, AES/EBU, XLR-3-31 type (x1)
Matrix		16 x 8 (AES/EBU)	30 x 16 (AES/EBU)
Audio Inputs	Surround Monitor	4ch, balanced XLR-3-31 type (x4), +4dBu (+24dBu max.), 10kΩ	
	COMMUNICATION (D-sub 50-pin)	Talk Back: 1ch, balanced, +4dBu (+24dBu max.), 10kΩ Intercom Reverse: 2ch, balanced, +4dBu (+24dBu max.), 10kΩ	
Digital Outputs	Program	1 Stereo x8 (buffered out) AES/EBU, XLR-3-32 type (x8)	1 Stereo x2 (buffered out) AES/EBU, XLR-3-32 type (x2)
	AUX Send	2 Stereo, AES/EBU, XLR-3-32 type (x2)	
	PFL Send	1 Stereo, AES/EBU, XLR-3-32 type (x1)	
	Insertion Send	1 Stereo, AES/EBU, XLR-3-32 type (x2)	2 Stereo, AES/EBU, XLR-3-32 type (x2)
	Mix	—	4 Stereo or 8 mono,AES/EBU, XLR-3-32 type (x8), W/DMBK-4001: 8 stereo, AES/EBU, XLR-3-32 type (x8)
	Dubbing	—	8ch, AES/EBU, XLR-3-32 type (x8)
Analog Outputs	Program	—	2ch, balanced XLR-3-32 type (x2) + 4dBu (+24dBu max.), 600Ω
	MAIN Monitor	2ch, balanced XLR-3-32 type (x2), + 4dBu (+24dBu max.), 600Ω	
	ALT Monitor	2ch, balanced XLR-3-32 type (x2), + 4dBu (+24dBu max.), 600Ω	
	Surround Monitor(C,S)	2ch, balanced XLR-3-32 type (x2), + 4dBu (+24dBu max.), 600Ω	
	Studio Monitor	2ch, balanced XLR-3-32 type (x2), + 4dBu (+24dBu max.), 600Ω	
	Studio Head Phone	2ch, balanced XLR-3-32 type (x2), + 4dBu (+24dBu max.), 600Ω	
	Head Phone	2ch, phone type, +20dBu, 10kΩ	
	COMMUNICATION (D-sub 50-pin)	Talk Back: 1ch x3 buffered out, +4dBu(+24dBu max.),600Ω	

		DMX-B4008	DMX-B4016
Optional Analog MIC/LINE Inputs	DMBK-4012	Up to 2 DMBK-4012 units can be installed	Up to 4 DMBK-4012 units can be installed
	MIC	2ch, balanced,, XLR-3-31 type (x2), -70dBu to -30dBu, (0dBumax.), 3kΩ	
	LINE	2ch, balanced, XLR-3-31 type (x2), +4dBu (+24dBu max.), 10kΩ	
	Insertion Inputs	2ch, balanced,, XLR-3-31 type (x2), +4dBu (+24dBu max.), 10kΩ	
	Insertion Outputs	2ch, balanced,, XLR-3-31 type (x2), +4dBu (+24dBu max.), Less than 150Ω	
	Built-in A/D Converter	Quantization: 20 bits/sample	
	Frequency Response	MIC: 30Hz to 20kHz within +0.2dB/-1.0dB	
	Total Harmonic Distortion	MIC: Less than 0.3%	
	Cross Talk	More than 60dB (at 8kHz)	
	Equivalent Input Noise	MIC: More than 126dBu	
Reference	Video Sync	BNC type (x2), loop-through Video signal: 25Hz (PAL), 29.97Hz (NTSC), 30Hz (EIA Black and White) Sync signal: Composite sync, Black burst or composite video	
	Word Sync	IN: TTL Compatible, 75Ω, BNC type(x1) OUT: TTL Compatible, 75Ω, BNC type(x2), buffered out	
	AES/EBU Sync	AES/EBU, XLR-3-31 type, with transformer. One digital input signal, selected with an internal switch, is used as referance audio signal.	
REMOTE I/F	GPI	D-sub 50-pin (x2), D-sub 25-pin (x1)	
	SCENE Remote	D-sub 15-pin (x1)	
	MUTE Remote	D-sub 50-pin (x1)	
	FADER Remote	D-sub 15-pin (x1)	
	Serial Remote I/O	D-sub 9-pin (x2)	
	Serial Remote	RS-422, D-sub 9-pin (x6) W/DMBK-4001	
	Parallel Remote	D-sub 15-pin (x1) W/DMBK-4001	
Equalizer	HF (Shelving Type)	Frequency range: 1kHz to 16kHz	
	MF (Peaking Type)	Frequency range: 220Hz to 3.3kHz	
	LF (Shelving Type)	Frequency range: 21Hz to 330Hz	
Filter	High cut	Cut off frequency: 8kHz	
	Low cut	Cut off frequency: 120kHz	
Dynamics	Limiter/Compressor	Threshold level: 0 to -60dB Attack time: 30µs to 300ms Recovery time: 30ms to 3s Ratio: 1:1 to ∞:1	
General	Power Requirements	AC 100/120/220/240V, 50/60Hz	
	Power Consumption	Control Panel: 170W Processor: 80W	
	Dimensions	Control Panel: 682(W) x 330(H) x 710(D) mm (26 7/8 x 13 x 28 inches) Processor: 424(W) x 177(H) x 450(D) mm(16 3/4 x 7 x 17 3/4 inches)	Control Panel: 990(W) x 330(H) x 710(D) mm (39 x 13 x 28 inches) Processor: 424(W) x 310(H) x 500(D) mm(16 3/4 x 12 1/4 x 19 3/4 inches)
	Weight	Control Panel: 50kg (110 lb 4 oz) Processor: 13.5 kg (29 ib 12 oz)	Control Panel: 72kg (158 lb 12 oz) Processor: 28 kg (61 lb 12 oz)

* 0dBu=0.775V r.m.s.

TV Production Console

MXP-700 Series

MXP-744

MXP-728

MXP-716

- The MXP-700 employs the latest in audio IC technology, along with innovative constructional technologies, that truly make it the new standard of reliability, performance and operator convenience for multi-mic mixing in broadcast applications, and audio/video and post production environments.
- Available in 16, 28 & 44 channel input frames. Designed to be configured to meet exact user needs, from on-air radio to live TV.
- Talkback functions allow engineer to talk to up to four external locations within the broadcast facility, as well as to the clean feeds and to all the sends.
- Multiple Mix-Minus functions for monitoring the mix signal minus selected sources.
- Versatile clean feeds allow for additional configurations for remote monitoring of transmission feeds.
- Auxiliary Send Outputs (four monaural and two stereo)
- A wide variety of inputs are available on the Mono and Stereo Input Modules, including four per monaural module (two for microphone signals and two for the line level signals—any two of which can be used simultaneously) and two stereo line inputs per stereo module, which are also simultaneously assignable.
- Automatic Signalization occurs during talkback and is also present while in on-air and rehearse modes.
- Fader start features are built into every fader.
- A transformer version is available which acts as an isolation device to significantly reduce interference and produce virtual radio frequency (RF) immunity.
- Reverse Talkback Function
- Two Stereo Master Output Modules—one for transmission and the other for recording onto to a two-track recorder (VTR), MiniDisc or digital audio tape (DAT).
- Up to Eight Group Modules, all with full send capabilities—along with dedicated returns—each containing a three-band equalizer (EQ). The EQ and Sends can be used with either group output or group return audio path.
- A convenient, state-of-the-art Dynamics Module — located directly on the console—contains four "side chain" processors that are freely assigned to any combination of inputs, group and master outputs via thumbwheel switches. Dynamic processing includes Compression, Expansion and Gating.
- Easy-to-read meter housing
- Remote fader start and external VCA control capabilities for custom interface applications.
- Five different types of meter housings
- Electronically balanced differential outputs
- Two stereo master outputs, each containing a monaural summed output with a separate volume control
- Four monaural and two stereo auxiliary send outputs
- Four monaural clean feed outputs
- All monaural, stereo and group modules have direct outputs which are jumper configurable to either prefader or postfader.
- Up to two monitor modules, supplying four separate stereo outputs, allow level control and source selection for multiple monitoring configurations.
- Dedicated, fully balanced differential summing busses for simplified Mix-Minus function.
- The security of a redundant power supply system provides insurance against costly downtime and on-air broadcast or production interruption.

MPX-700 Specifications

Audio Performance

Frequency Response:	20-20kHz ±0.5dBu unfiltered Ref. +4dBu	
THD & Noise	<0.05% at 1kHz, +4dBu unity gain	
Equivalent Input Noise	Mic < -127dB EIN	Max. mic qain Max. trim
	Line < -97dBu (Both are transformerless)	Max. trim
Noise Level	Master < -90dBu	Fader Minimum
	Channel < -82dBu	Ch. Fader Min.
	Channel < -80dBu	Ch. Fader 0dB
Crosstalk	-75dB	At 10kHz
Fader Kill	>80dB	At 10kHz
Equalizer	High Max. ±15dB	All unfiltered at 10kZ, Shelving
	High Mid ± 15dB	800Hz-8kHz, Peaking
	Low Mid ± 15dB	150Hz-2.5kHz, Peaking
	Low Max. ±15dB	At 80Hz, Shelving
High Pass Filter	3dB down at 20-320Hz	12dB/octave
Oscillator	Frequency 30, 400, 1k, 4k & 15kHz	(±5%)

Power Requirements	AC 100V / 120V / 220V to 240V, 50/60Hz.		
Power Consumption	MXP-716 : 350W; 1194 BTUs/hr		
	MXP-728 : 500W; 1705 BTUs/hr		
	MXP-744 : 800W; 2728 BTUs/hr		
Weight	MODULE	(w/out trans)	1.0 kg (2 lb 3 oz)
		(w/trans)	1.5 kg (3 lb 6 oz)
	FRAME	MXP-716	25.0 kg (55 lb)
		MXP-728	36.5 kg (81 lb)
		MXP-744	52.1 kg (115 lb)
	POWER SUPPLY	AC-P700	20.9 kg (55 lb 2 oz)
	STAND	MXBK-SU71	20.0 kg (44 lb 1 oz)
		MXBK-SU72	33.0 kg (72 lb 12 oz)
		MXBK-SU73	36.0 kg (79 lb 6 oz)
	METER HOUSING	Blank	8.6 kg (18 lb 15 oz)
		4 Channel	9.1 kg (20 lb 1 oz)
		8 Channel	9.2 kg (20 lb 5 oz)
Size/ Dimensions	MXP-716	795.1MM (D) X 927MM (W) X 377.2MM (H) (31 5/16 X 36 1/2 X 14 7/8 inches)	
	MXP-728	795.1MM (D) X 1347MM (W) X 377.2MM (H) (31 5/16 X 53 1/32 X 14 7/8 inches)	
	MXP-744	795.1MM (D) X 1902MM (W) X 377.2MM (H) (31 5/16 X 74 7/8 X 14 7/8 inches)	
Power Supply	External		

DC Outputs	Voltage	Amperage Nom. (A)
	+15	7.8 (A)
	-15	7.2 (A)
	+5	1.0 (A)
	+48	0.25 (A)
	+12	0.05 (A)

MPX-700 Series System Configuration

Model	Description
MXP-716	Small Frame
MXP-728	Medium Frame
MXP-744	Large Frame
AC-P700	Power Supply
MXBK-MU70	Blank Meter
MXBK-MU71	VU Meter 4 Channel
MXBK-MU72	Peak Meter 4 Channel
MXBK-MU73	VU Meter 8 Channel
MXBK-MU74	Peak Meter 8 Channel
MXBK-IM71	Mono Input Module
MXBK-IM72	Mono Input Module w/ T*
MXBK-SI71	Stereo Module
MXBK-SI72	Stereo Module w/ T*
MXBK-GP71	Group Module
MXBK-GP-72	Group Module w/ T*
MXBK-MM71	Master Module A
MXBK-MM72	Master Module A w/ T*
MXBK-MM73	Master Module B
MXBK-MM74	Master Module B w/ T*
MXBK-MN71	Monitor Module
MXBK-MN72	Monitor Module A w/ T*
MXBK-CM71	Comm Module
MXBK-DY71	Dynamics Module B w/ T*
MXBK-MC71	Machine Control Module
MXBK-SU71	MXP-716 Stand
MXBK-SU72	MXP-728 Stand
MXBK-SU73	MXP-744 Stand
MXBK-BL70	Blank Module
MXBK-CF71	Clean Feed Module
MXBK-CF72	Clean Feed Module w/ T*

* T = Transformer

Broadcast/Post-Production Audio Console

MXP-2900 Series

MXP-2916

- Most suitable for video editing, post-production and on-air applications
- Four frame sizes:
  MXP-2908 — 10 slots
  (Desk or 19-inch rack mounted for edit suite and mobile applications)
  MXP-2916 — 20 slots
  MXP-2926 — 30 slots
  MXP-2936 — 40 slots
- Video editing features (controlled from BVE-9100 system or BVE-910 video editor)
  — Stereo or 4-channel audio preview switching
  — Channel crossfade control
  — Depth of fade "voice over" control
  — 4 channels of group outputs
- Post-production features
  — 3-band EQ on mono, stereo and group modules
  — Four AUX sends
  — Assignable dynamics module
- On-air features
  — Control room and studio muting functions
  — Talkback and reverse talkback
  — Cough switch
  — Fader start
  — Multiple outputs
  — Programmable clock
- Dimensions
  MXP-2908: 476.2 (W) x 620.3 (H) x 158.5 (D) mm (18 3/4 x 24 1/2 x 6 1/4 inches)
  MXP-2916: 850.9 (W) x 331.7 (H) x 624.2 (D) mm (33 1/2 x13 1/8 x 24 5/8 inches)
  MXP-2926: 1257.3 (W) x 331.7 (H) x 624.2 (D) mm (49 1/2 x 13 1/8 x 24 5/8 inches)
  MXP-2936: 1663.7 (W) x 331.7 (H) x 624.2 (D) mm (65 1/2 x 13 1/8 x 24 5/8 inches)

System Configuration

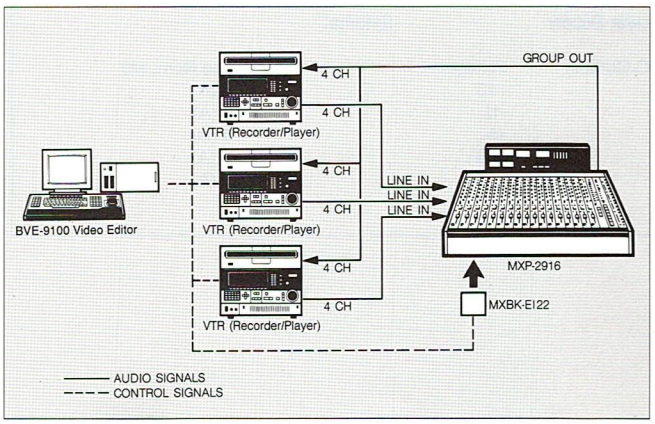
Model	Description
MXP-2908	10-slot Frame
MXP-2916/2916P	20-slot Frame with VU or PPM
MXP-2926/2926P	30-slot Frame with VU or PPM
MXP-2936/2936P	40-slot Frame with VU or PPM
MXBK-2901/2901E	Mono Input Module
MXBK-2902*	Group Module
MXBK-2903*	Dynamics Module
MSBK-2904/2904E	Stereo Input Module
MXBK-2905**	System Module with One Stereo Fader
MXBK-2925**	System Module with Two Mono Faders
MXBK-2906*	Monitor Module
MXBK-2908*	Master Module
MXBK-2909/2909E	Stereo Input Module without EQ
MXBK-2916**	Monitor TV Module with VU
MXBK-2926**	Monitor TV Module with PPM
MXBK-2917*	Communication Module
MXBK-MI23/MI24	Mic Input Board
MXBK-LI23/LI24	Line Input Board
MXBK-EI21*	Video Editor Interface
MXBK-EI22*	BVE-910/9100 Video Editor Interface
MXBK-EI24**	BVE-910/9100 Video Editor Interface
AC-P8**	Power Supply Unit
AC-P2000A*	Power Supply Unit

* Usable with MXP-2916/2916P/2926/2926P/2936/2936P
** Usable with MXP-2908

System Example

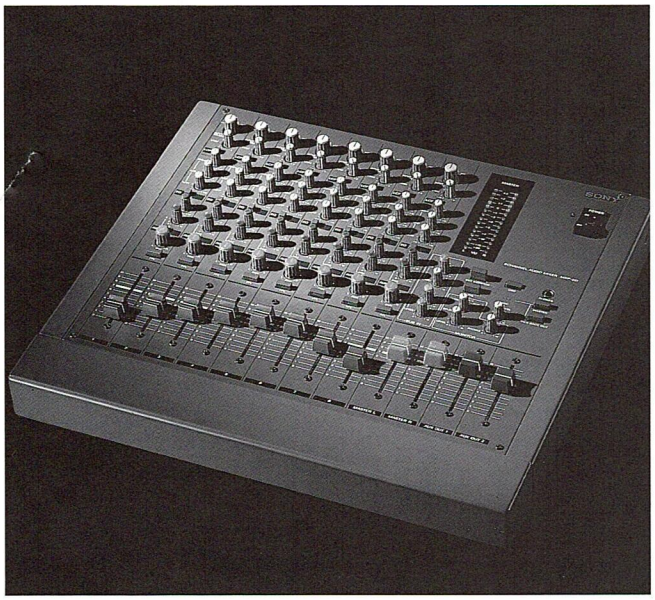
4-channel Free Recorder Assignment System with MXP-2916
(Controlled from BVE-9100 system installed with BKE-9002, BKE-9600, BKE-9632, BKE-9633 and other options.)

MXP-2916	Console Frame	x 1
MXBK-2901	Input Module (Monaural type)	x 12
MXBK-2902	Group Module	x 4
MXBK-2903	Dynamics Module	x 1
MXBK-2906	Monitor Module	x 1
MXBK-2908	Master Module	x 1
MXBK-2917	Communication Module	x 1
MXBK-EI22	Editor Interface Board for MXP-2916/2926/2936	x 1
AC-P2000A	Power Supply for MXP-2916/2926/2936	x 1



8-Channel Audio Mixer

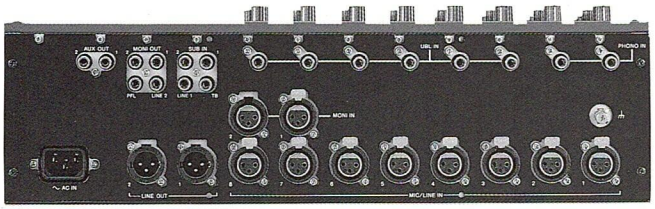
MXP-210



- Suitable for a variety of institutional audio/video applications
- 8 channels of balanced MIC/LINE inputs, plus unbalanced line (6 channels) and pnono (2 channels) inputs
- 30dB trim on microphone and balanced line inputs
- DC 48V external power switch on microphone channel
- 3-band EQ, 2 AUX sends and PFL on each channel
- Two sub-inputs with level and panpot control
- Two external monitor inputs and switch
- Separate L and R master faders
- Two 15-segment VU meters
- 1kHz test tone oscillator
- Talkback microphone, talkback output and "talk to master" switch
- Headphone amplifier

Supplied Accessories

AC power cable
AC plug adaptor



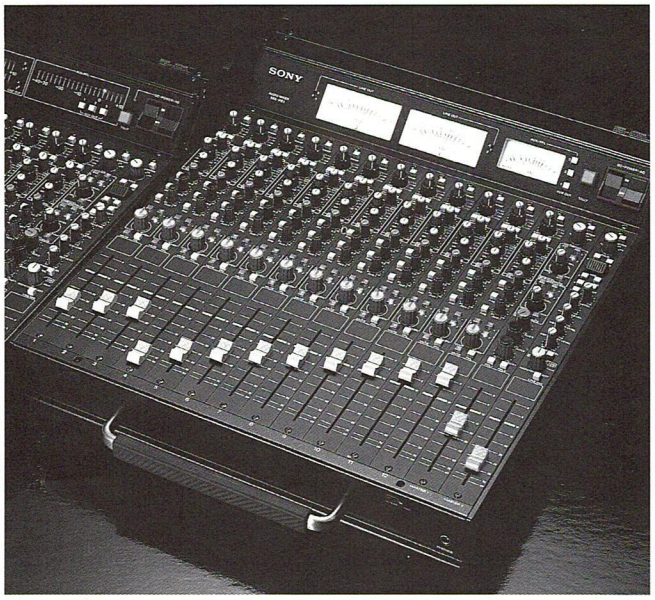
Optional Accessories

MXBK-200
19-inch Rack Mount Adaptor

MXBK-201
Table Kit

12-Channel Audio Mixer

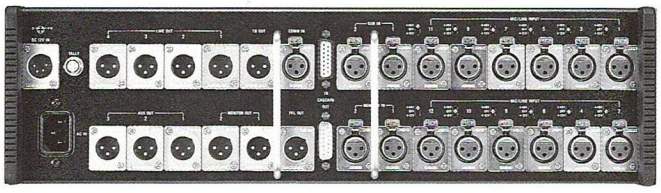
MX-P61VU



- Equipped with 12 MIC/LINE inputs, 4 LINE outputs, TB output, communicate input and cascade connectors
- Switchable microphone power supply — +48V (external power supply) and +12V (A/B feed)
- Built-in 1kHz test tone
- High and low cut filters
- Monitoring through either headphones or external monitor speaker system
- Selectable displays — mechanical type VU meters
- Self-illuminating MUTE/LINE SELECT switches
- AC/DC operation

Supplied Accessory

AC power cable



Optional Accessories

MXBK-6100
Blank Panel

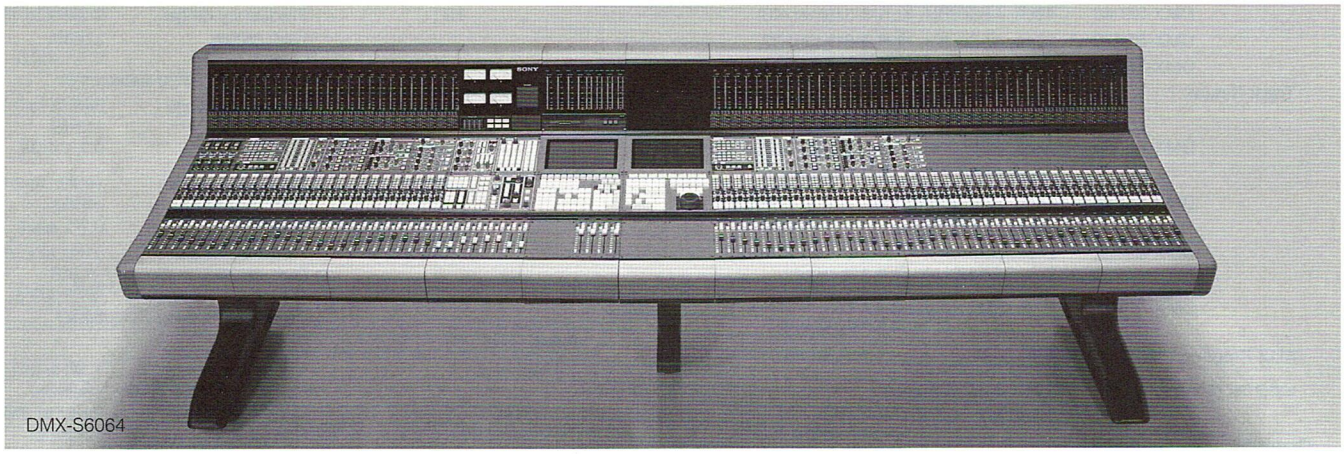
MXBK-6103
Master 2 Module

Specifications

	MXP-210	MX-P61VU
Inputs	8 channels MIC/LINE (x8), balanced LINE (x6), unbalanced PHONO (x2), unbalanced SUB (x2), unbalanced MONITOR (x2), unbalanced	12 channels MIC/LINE (x12), balanced MONITOR IN (x2), balanced SUB (x2), balanced COMM IN (x1), balanced
Input connectors MIC/LINE MIC powering LINE PHONO SUB MONITOR IN COMM IN	 XLR-3-31 type DC 48V Phono Phono Phono Phono —	 XLR-3-31 type DC 48V/12V XLR-3-31 type — XLR-3-31 type XLR-3-31 type XLR-3-31 type
Frequency response	20Hz to 20kHz +0.5dB/-1.5dB	30Hz to 20kHz ±0.5dB
Peak indicator	Yes	Yes
Equalizer High Mid Low	10kHz ± 12dB 2.8kHz ± 14dB 100Hz ± 12dB	10kHz ± 12dB 500Hz/1kHz/2kHz/4kHz ± 12dB 100Hz ± 12dB
Filter	Low cut	Low cut/high cut
Compressor/limiter	—	Limiter for each input
Expander	—	—
Built-in oscilator	1kHz	1kHz
Metering	2 VU (LED)	MX-P61VU: 2 VU + 1VU (AUX/PFL)
Outputs	LINE (x2), balanced LINE (x2), unbalanced AUX (x2), unbalanced MONITOR (x2), unbalanced PHONE (x2), unbalanced TB (x1), unbalanced PFL (x1), unbalanced	LINE (x4), balanced AUX (x3), balanced MONITOR (x2), balanced PFL (x1), balanced TB (x1), unbalanced PHONE (x2), unbalanced
Output connectors LINE (balanced) LINE (unbalanced) AUX MONITOR PHONE TB PFL SUB	 XLR-3-32 type Phono Phono Phono Phono Phono Phono —	 XLR-3-32 type — XLR-3-32 type XLR-3-32 type Phone XLR-3-32 type XLR-3-32 type —
Power requirements	AC 110 to 120V (UC) AC 220 to 240V (EK) 50/60Hz	AC 100 to 120V or AC 220 to 240V, selectable 50/60Hz
Power consumption	24W	52W (AC) /50W (DC)
Dimensions (W x H x D)	424 x 132 x 358 mm (16¾ x 5¼ x 14⅛ inches)	430 x 130 x 560 mm (17 x 5⅛ x 22⅛ inches)
Weight	7.5kg (16 lb 9 oz)	18.5kg (40 lb 14 oz)

Digital Audio Mixer

DMX-S6000 Series



DMX-S6064

- The DMX-S6000 Series consists of four models, DMX-S6024/S6032/S6048, which are designed for use with the Sony PCM-3324/3324A/3324S Digital Multitrack Recorders. The DMX-S6064 is designed to be used with the PCM-3348.
- Full Digital Processing - Each model in the DMX-S6000 Series connects to the corresponding Sony Digital Multitrack Recorder via an SDIF-2 multi cable so audio signals are input and output in digital form. Guaranteed AES/EBU format outputs of 24-bit precision.
- Snapshot Automation Function permits the setting of up to 999 cues(time code triggers), 255 scenes(console snapshots), 999 events(GPI closures) and 255 programs.
- Data writing capabilities are available when the VTR is in Jog, or Video incremented frame by frame
- 3.5 inch Floppy Disk Drive – Snapshot and fade automation data can be saved and recalled
- Dedicated Functions – All critical controls, such as mute, fader, PFL and solo, are provided for every channel.
- Assignable Functions – The control of the signal paths; EQ, filters, dynamics, PAN, etc., is from assignable controls - rationalizing their layout and dramatically reducing the control panel area.
- Definable Functions – Two rotary controls and two switches above each channel fader can be defined as the controls for specific processing functions.
- 4-Band Equalizer standard includes: HF (high frequency) HMF (high mid-range frequency), LMF (low mid-range frequency), and LF (low frequency). A±15dB boost/cut Q is switchable in three steps: 0.7, 1.4, and 2.5. The response of the HF (high frequency) and LF (low frequency) bands can be switched between shelving and peaking.
- Dynamics; high-quality limiter/compressor and expander/gate can be set for each channel.
- Path; The filters, equalizer and dynamics can be turned on and off independently and arranged in any sequence.
- ALT Switch; compares alternative EQ or dynamics settings to existing values
- Channel Copy; press button operation enables all settings of one channel to be copied to other channels.
- Large Fader/Small Fader layout is arranged in traditional in-line style. Audio paths are arranged to operate very flexibly, allowing the console to be used in recording, track bouncing and broadcast modes.
- Four-channel PGM outputs and Surround-Compatible Quad Panpot; Four Panpot modes: 1 Stereo, 2 Stereo, 2-2 Quad, and 3-1 Quad. DIV (divergence) control is provided for 3-1 Quad mode so that the unit is also 3-1 surround-compatible.
- Rec-ready control of a multitrack recorder is available from the control panel of the DMX-S6000 Series unit via an SRIF-4
- The DMX-S6000 is capable of external synchronization with Video Reference (NTSC/PAL/HDVS), DI Sync(AES/EBU), and Word Sync. It is also compatible with sampling frequencies of 44.056kHz, 44.1kHz, 47.952kHz, 48kHz.

Supplied Accessories

AC Power Cable
Digital RGB Video Cable (30m)
HDLC Cable (30m) (Processor–Console control surface)
Rack Mount Bracket
Operation Software
Operation Manual

Specifications DMX-S6000 Series

Inputs

Channel:		
	DMX-S6064	64ch, AES/EBU, XLR-3-31type(x64)
	DMX-S6048	48ch, AES/EBU, XLR-3-31type(x48)
	DMX-S6032	32ch, AES/EBU, XLR-3-31type(x32)
	DMX-S6024	24ch, AES/EBU, XLR-3-31type(x24)
Track Return:		
	DMX-S6064	48ch, SDIF-2 balanced, D-Sub 50P(x2) 16ch, AES/EBU XLR-3-31type(x16)
	DMX-S6048	24ch, SDIF-2 balanced, D-Sub 50P(x1) 24ch, AES/EBU XLR-3-31type(x24)
	DMX-S6032	24ch, SDIF-2 balanced, D-Sub 50P(x1) 8ch, AES/EBU XLR-3-31type(x8)
	DMX-S6024	24ch, SDIF-2 balanced, D-Sub 50P(x1) 8ch, AES/EBU XLR-3-31type(x8)
AUX Return:		8ch, AES/EBU XLR-3-31type(x8)
External Monitor:		8 Mono or 16 Stereo, AES/EBU XLR-3-31type(x8)

Outputs

Program:		4ch, AES/EBU XLR-3-32type(x4)
Track Send:		
	DMX-S6064:	48ch, SDIF-2 balanced, D-sub 50P(x2) 8ch, AES/EBU XLR-3-32type(x8)
	DMX-S6048:	24ch, SDIF-2 balanced, D-sub 50P(x1) 24ch, AES/EBU XLR-3-32type(x24)
	DMX-S6032:	24ch, SDIF-2 balanced, D-sub 50P(x2) 8ch, AES/EBU XLR-3-32type(x8)
	DMX-S6024:	24ch, SDIF-2 balanced, D-sub 50P(x2)
Mono:		2ch, AES/EBU XLR-3-32type(x2)
AUX Send:		8ch,AES/EBU XLR-3-32type(x8)
Insertion Send:		8 Mono or 16 Stereo, AES/EBU XLR-3-32type(x8)
Monitor:		4ch, AES/EBU XLR-3-32type(x2) for Control room
		L/R, AES/EBU XLR-3-32type(x1) for Voice over booth

Reference

Video Sync:	
No. of ch:	1ch, BNC type(x2) through
Video signal:	25Hz(PAL), 29.97Hz(NTSC) 30Hz(EIA Black and White)
Sync signal:	Composite sync, Black burst or Composite video
Termination:	75Ω
Word Sync:	
No. of ch:	1ch, BNC type(x2) through, TTL Compatible 75Ω
HD Sync:	
No. of ch:	1ch,BNC type(x2) through, ±0.3V, 75Ω

MIC/LINE

No. of channels:	4ch, balanced, XLR-3-31type(x4)
Frequency Response:	
MIC:	30Hz to 20kHz within +0dB/-0.5dB
LINE:	20Hz to 20kHz within +0dB/-0.5dB
Total Harmonic Distortion:	
MIC:	Less than 0.3%
LINE:	Less than 0.1%
Crosstalk:	More than70dB (at 8kHz)
Equivalent Input Noise:	
MIC:	More than 128dB
LINE:	More than 80dB

Sampling Frequencies

48kHz, 47.952kHz, 44.1kHz, 44.056kHz

Equalizer

HF:	Frequency range:	1.3kHz to 17.4kHz
	Gain range:	±15dB
	Q type:	0.7/1.4/2.5
	(Shelving/Peaking Selectable)	
HMF:	Frequency range:	648Hz to 8.7kHz
	Gain range:	±15dB
	Q type:	0.7/1.4/2.5
LMF:	Frequency range:	193Hz to 2.6kHz
	Gain range	±15dB
	Q type:	0.7/1.4/2.5
LF:	Freqency range:	31Hz to 420Hz
	Gain range:	±15dB
	Q type:	0.7/1.4/2.5
	(Shelving/Peaking Selectable)	

Filter

High cut:	Cut off frequency:	1.3kHz to 17.4kHz
	Roll off characteristics:	12dB/oct
Low cut:	Cut off frequency:	21Hz to 330Hz
	Roll off characteristics:	12dB/oct

Dynamics

Limiter/Compressor		
	Threshold level:	0 to -60dB
	Attack time:	30µs to 300ms
	Recovery time:	30ms to 3s
	Ratio:	1.1:1 to ∞:1
	Gain:	0 to 30dB
Expander/Gate		
	Threshold level:	-60 to 0dB
	Attack time:	1µs to 10ms
	Recovery time:	30ms to 3s
	Ratio:	1.1:1 to ∞1:10
	Gain:	0 to -60dB

Built-in Oscillator

Frequency:	PINK NOISE, WHITE NOISE, SIN WAVE (20Hz to 20kHz)
Output level:	+10dB to ∞

Indicator

Level meters:	101 Segment LED bargraphs

General

Power requirements:	AC100/120/220/240V, 50/60Hz
Power consumption:	
DMX-S6064:	Max. 2.0kW
DMX-S6048:	Max. 1.6kW
DMX-S6032:	Max. 1.2kW
DMX-S6024:	Max. 1.0kW
Processor:	Less than 800W
Weight:	
DMX-S6064:	Approx. 330kg (727 lb 8 oz)
DMX-S6048:	Approx. 270kg (595 lb 4 oz)
DMX-S6032:	Approx. 210kg (463 lb)
DMX-S6024:	Approx. 190kg (418 lb 11 oz)
Processor:	Approx. 60kg (132 lb 4 oz)

Dimensions

DMX-S6064	Approx. 2670(W) x 980(H) x 1010(D)mm (104 7/8 x 38 5/8 x 39 7/8 inches)
DMX-S6048:	Approx. 2160(W) x 980(H) X 1010(D)mm (84 3/4 x 38 5/8 x 39 7/8 inches)
DMX-S6032:	Approx. 1650(W) x 980(H) X 1010(D)mm (65 x 38 5/8 x 39 7/8 inches)
DMX-S6024:	Approx. 1390(W) x 980(H) X 1010(D)mm (15 3/8 x 38 5/8 x 39 7/8 inches)
Processor:	Approx. 424(W) x 885(H) X 600(D)mm

SECTION 10

Digital Signal Processors

DPS-V77 Multi-Effects Processor 10-1
DPS-D7 Digital Delay Unit 10-2
DPS-R7 Digital Reverberator 10-2
DPS-M7 Digital Sonic Modulator 10-3
DPS-F7 Digital Dynamic Filter Plus 10-3
HR-GP5 Half Rack Guitar Processor 10-4
HR-MP5 Half Rack Multi Processor 10-4
HR-RC5 Half Rack Foot Controller 10-5

Multi-Processor

DPS-V77

- High sound quality
- 2 independantly controllable effect blocks & level mixer blocks
- EQ / main effect in each effect block
- 2 effect blocks can be connected via both Serial and Parallel
- Easy to operate featuring large display, jog and shuttle function, 10 keys, preset number display with 7 segment LED, and SPC (Standard Parameter Configuration).
- Digital I/O (44.056 or 44.1 or 48.0 kHz) AES/EBU or SPDIF
- 198 preset memories and 198 user memories (99 * 2 Blocks, 99 * 2 Blocks)
- Long Delay Time

  Standard 32-bit mode 1.3sec. St.(2.6sec. Mono)
  * 2 16-bit mode 2.6sec. St.(5.2sec. Mono)
  * 4 8-bit mode 5.2sec. St.(10.4sec. Mono)
- MIDI control/assignable foot control
- 1U / full rack size
- Morpheus (Transition between 2 effects)

Specifications

Quantization:	Internal 58-bit, delay memory 32-bit
A/D Converter:	1-bit ADC (24-bit resolution)
D/A Converter:	1-bit DAC (20-bit resolution)
Sampling Frequency:	Analog in; 48 kHz Digital in; 44.1kHz, 48kHz
Frequency Response:	20 ~ 22kHz
Signal to noise Ratio:	More than 97dB
Dynamic Range:	More than 97dB
Total Harmonic Distortion:	Less Than 0.0035%
Analog Inputs:	2 channels, +4dBs, 10kΩ, Balanced XLR 3-31 type 2 channels, +4dBs or -20dBs, 50kΩ, Unbalanced, PHONE type
Analog Outputs:	2 channels, +4dBs, 1kΩ, Balanced XLR 3-31 type 2 channels, +4dBs or -20dBs, 1kΩ, Unbalanced, PHONE type
Digital IN / OUT:	Mini DIN 8 pin, AES/EBU & SPDIF (with option cables)
MIDI:	IN/OUT or Through
Assignable Control IN:	PEDAL1 / PEDAL2
Memory Capacity:	Presets Memories; Bank1 99, Bank2 99 User Memories; Bank1 99, Bank2 99
Power Requirements:	AC 100V, 120V, 220~ 230V
Power Consumption:	25W (Tentative)
Dimensions:	482(W) x 44(H) x 320(D) mm
Weight:	Approx. 5Kg

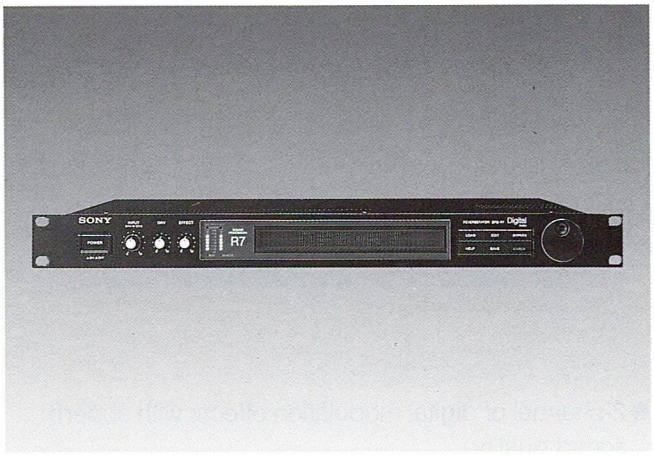
Digital Delay Unit

DPS-D7

- Stereo digital audio delay unit including digital delay processing algorithm, 3-band digital equalizer and digital panpot control
- 18-bit oversampling A/D and 1-bit pulse D/A converter* system with digital filters for superb sound quality
- High-speed 32-bit digital signal processing for complex delay effects control
- 100 preset memory
- User memory for up to 256 effects setting
- Selectable unit for delay time, 'ms', 'm', '♩' or 'word'
- Realtime monitoring capability
- 1U high and 19-inch rack mountable

Digital Reverberator

DPS-R7



- High-performance 2-channel digital reverberator
- 18-bit oversampling A/D and 1-bit pulse D/A converter* system with digital filters for superb sound quality
- High-speed 32-bit digital signal processing for complex delay effects control
- 100 preset memory
- User memory for up to 256 effects setting
- Versatile reverb effects control
- 1U high and 19-inch rack mountable

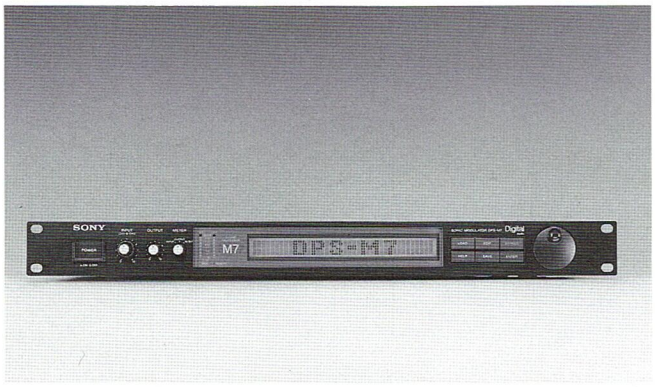
** NOTE: Sony corporation developed the Pulse D/A converter and designed the LSI circuitry, which incorporates the multistage noise shaping technique originated by NTT (Nippon Telegraph and Telephone Corporation).*

Specifications

	DPS-D7	DPS-R7
Quantization	18-bit linear	
Sampling frequency	48kHz	40kHz
Inputs	+4dBs (+24dBs max.), 10kΩ, balanced, XLR-3-31 type (x 2) -10dBs (+10dBs max.), 50kΩ, unbalanced, PHONE (x 2)	
Outputs	+4dB (+24dBs max.), more than 600Ω balanced, XLR-3-32 type (x 2) -10dBs (+10dBs max.), more than 10kΩ unbalanced, PHONE (x 2)	
Frequency response	10Hz to 22kHz +0dB/-1.0dB	10Hz to 18kHz +0dB/-1.0dB
Signal-to-noise ratio	More than 94dB	More than 90dB
Total harmonic distortion	Less than 0.0035% (1kHz)	Less than 0.004% (1kHz)
Memory capacity	100 (Preset memory) Up to 256 (User memory)	
Power requirements	AC 120V, 60Hz (UC) AC 230V, 50/60Hz (AE) AC 240V, 50/60Hz (UK)	
Power consumption	Approx. 28.2W	
Dimensions	482 (W) x 44 (H) x 320 (D) mm (19 x 1 3/4 x 12 5/8 inches)	
Weight	4.8kg (10 lb 9 oz)	

Digital Sonic Modulator

DPS-M7



- 2-channel of digital modulation effects with superb sound quality
- Newly developed algorithms provide chorus, phaser, pitch shifter, flanger and other unique effects which are necessary for audio recording
- 18-bit oversampling A/D and 1-bit pulse D/A converter* system with digital filters for superb sound quality
- A newly developed LSI allows complex digital effects processing at high speed
- Interfacing with external control equipment such as MIDI equipment
- 100 preset memory
- User memory for up to 256 effects setting
- 1U high and 19-inch rack mountable

Digital Dynamic Filter Plus

DPS-F7

- 2-channel of digital dynamic filter plus including 10 algorithms provide a wide range of filter effects and outstanding sound quality
- 18-bit oversampling A/D and 1-bit pulse D/A converter* system with 45-bit noise shaping digital filters for superb sound quality
- Interfacing with external control equipment such as MIDI equipment
- 100 preset memory
- User memory for up to 256 effects setting
- 1U high and 19-inch rack mountable

** NOTE: Sony corporation developed the Pulse D/A converter and designed the LSI circuitry, which incorporates the multistage noise shaping technique originated by NTT (Nippon Telegraph and Telephone Corporation).*

Specifications

	DPS-M7	DPS-F7
Quantization	18-bit linear	
Sampling frequency	48kHz	
Inputs	+4dBs (+24dBs max.), 10kΩ, balanced, XLR-3-31 type (x 2) -10dBs (+10dBs max.), 50kΩ, unbalanced, PHONE (x 2)	
Outputs	+4dB (+24dBs max.), more than 600Ω balanced, XLR-3-32 type (x 2) -10dBs (+10dBs max.), more than 10kΩ unbalanced, PHONE (x 2)	
Frequency response	10Hz to 22kHz +0dB/-1.0dB	
Signal-to-noise ratio	More than 97dB	
Total harmonic distortion	Less than 0.0035% (1kHz)	
Memory capacity	100 (Preset memory) Up to 256 (User memory)	
Power requirements	AC 120V, 60Hz (UC) AC 230V, 50/60Hz (AE) AC 240V, 50/60Hz (UK)	
Power consumption	Approx. 27W	
Dimensions	482 (W) x 44 (H) x 320 (D) mm (19 x 1 3/4 x 12 5/8 inches)	
Weight	5kg (11 lb)	

Guitar Processor

HR-GP5

- Up to seven effects at a time
- Twin 18-bit A/D and D/A converters
- Four amp simulators and four microphone positions
- Intelligent pitch shifter
- Built-in guitar tuner
- Large graphic display and jog/shuttle encoder
- 100 preset effects and 100 user memory settings
- MIDI interface
- Footswitch control for live performances (HR-RC5)
- High speed 48-bit digital signal processing

Multi Processor

HR-MP5

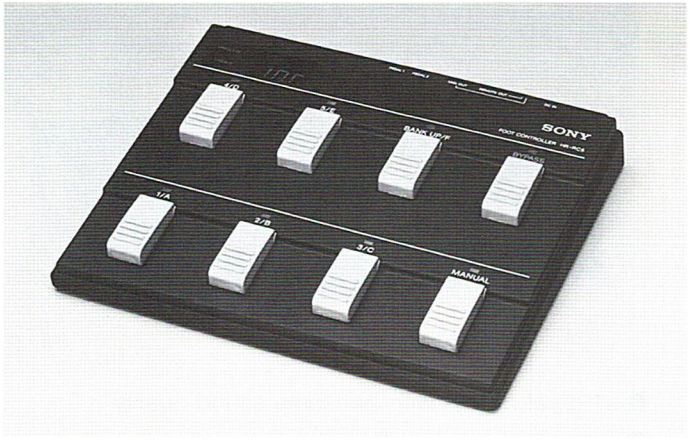
- 51 great effects with awesome sound quality
- Twin effect block construction
- High speed stereo processing
- Twin 18-bit A/D and D/A converters
- Intelligent pitch shifter
- Large graphic display and jog/shuttle encoder
- Built-in tuner for musical instruments
- 100 preset effects and 100 user memory settings
- MIDI interface
- Footswitch control for live performances (HR-RC5)

	HR-GP5	HR-MP5
Audio Performance		
Signal processing	1-channel, 18-bit (A/D) 2-channel, 18-bit (D/A)	2-channel, 18-bit (A/D) 2-channel, 18-bit (D/A)
Sampling frequency	48kHz	48kHz
Frequency response	20Hz – 22Hz, +0dB/-3dB	20Hz – 22Hz, +0dB/-3dB
Signal-to-noise ratio	More than 90dB	More than 92dB
Dynamic range	More than 90dB	More than 92dB
Total harmonic distortion	Less than 0.01% (1kHz)	Less than 0.01% (1kHz)
Inputs		
Line inputs	Phone x2 (front/rear), -20dBu, 1MΩ (front), 50kΩ (rear), unbalanced	2 channels (phone), -10dBu, 50kΩ, unbalanced
MIDI in	DIN 5-pin	DIN 5-pin
Remote in	MINI DIN 8-pin	MINI DIN 8-pin
Pedal in	Assignable control connector x1	Assignable control connector x1
Outputs		
Line output	2 channels (phone), -20dBu, 1kΩ, unbalanced	2 channels (phone), -10dBu,1kΩ, unbalanced
Headphone output	Phone (stereo), 2mW (8Ω)	Phone (stereo), 2mW (8Ω)
MIDI out	DIN 5-pin	DIN 5-pin
General		
Power requirements	DC 9V	DC 9V
Power consumption	6W	6W
Dimensions	220(W) x 44(H) x 250(D)mm (8¾ x 1 13/16 x 9⅞ inches) Without projecting parts	220(W) x 44(H) x 250(D)mm (8¾ x 1 13/16 x 9⅞ inches) Without projecting parts
Weight	Approx. 2kg (4 lb 6 oz)	Approx. 2kg (4 lb 6 oz)
Supplied accessories	AC adapter Preset program sheet Operation manual	Preset program sheet Operation manual
Optional accessory	HR-RC5 Foot controller	HR-RC5 Foot controller

* 0dBu = 0.775v. r.m.s.
* When connecting to a foot pedal, use a unit with impedance of more than 20kΩ.

Foot Controller

HR-RC5



- Requires no separate power adapter, power is supplied from the effect processor
- Controls the preset and user's memories and parameters and switching ON/OFF of each effect
- MIDI interface
- Transmits program change signals and control change signals
- Can memorize MIDI channel numbers and MIDI signal control change
- Connects with expression pedals and foot pedals

Specifications

Dimensions: 300(W) x 48(H) x 235(D)mm
Weight: 1.2 kg (2 lb 10 oz.)

SECTION 11

Wired Microphones

Condenser Microphones

C-800G Vacuum Tube Studio Microphone 11-1
C-800 Vacuum Tube Studio Microphone 11-1
C-48 Studio Microphone 11-2
C-74/76 Uni-directional Microphone 11-3
SC-76/72 Carrying Case 11-3
C-536P Uni-directional Microphone 11-3

Electret Condenser Microphones

ECM-672 Uni-directional Microphone 11-4
ECM-510 Interview Microphone 11-4
ECM-530 Uni-directional Microphone 11-4
ECM-531 Uni-directional Microphone 11-5
ECM-MS5 MS Stereo Microphone 11-5
ECM-999 MS Stereo Microphone 11-5
ECM-670 Electret Condenser Microphone 11-5
ECM-77 Series Omni-directional Lavalier Microphones 11-6
ECM-66 Series Uni-directional Lavalier Microphones 11-6
ECM-55 Series Omni-directional Lavalier Microphones 11-7
ECM-44 Series Omni-directional Lavalier Microphones 11-7
ECM-166BC Uni-directional Lavalier Microphone 11-8

Dynamic Microphones

F-780 Uni-directional Microphone 11-9
F-740 Uni-directional Microphone 11-9
F-730 Uni-directional Microphone 11-9
F-720 Uni-directional Microphone 11-9
F-710 Uni-directional Microphone 11-9
Application and Suitability 11-10
Accessories 11-10

Specifications ..... 11-12 Through 11-16

Condenser Microphones

Vacuum Tube Studio Microphone

C-800G

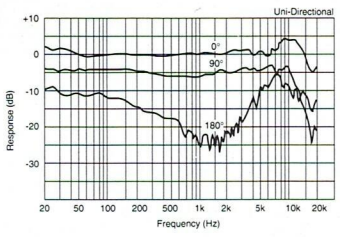
- Designed for the highest possible sound reproduction quality
- Suitable for vocal recording in studios and film post-production houses
- High sensitivity of -33dB/Pa
- Low noise and low distortion due to built-in cooling system
- Large diaphragm capsule
- Electronically selectable directivity, either omni-directional or cardioid

Vacuum Tube Studio Microphone

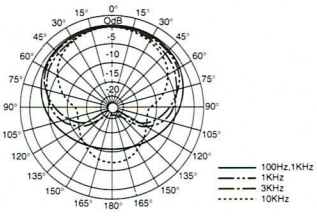
C-800

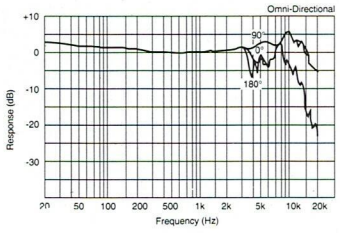
- Ideal for critical music recording applications in recording studios
- Successor to the world famous Sony C-37A
- Wide dynamic range, with 150dB SPL input capability
- Warm, clear and natural reproduction of wide frequency range
- Mechanically selectable directivity, either omni-directional or cardioid
- Large diaphragm capsule

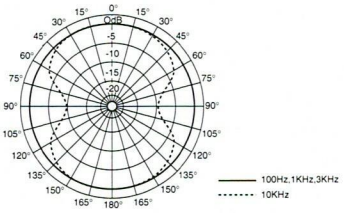
Frequency Response Characteristics



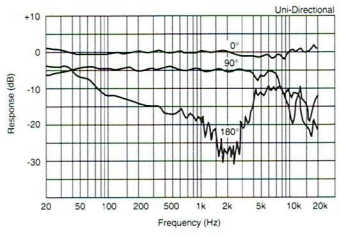
Directivity Characteristics



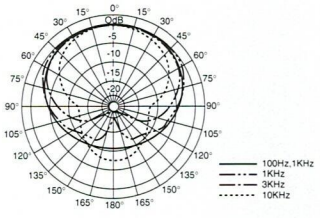


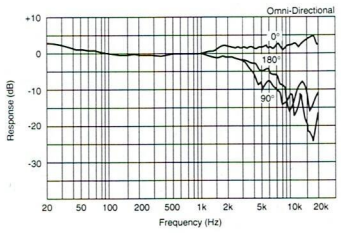


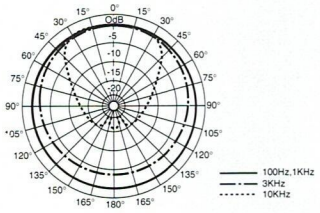
Frequency Response Characteristics



Directivity Characteristics

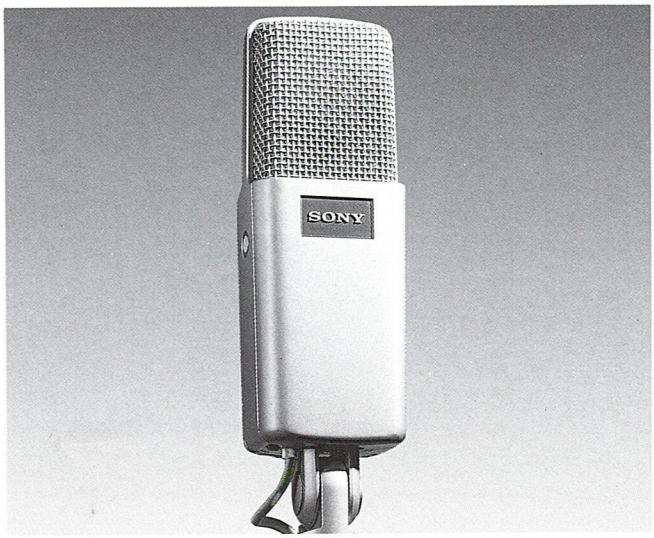






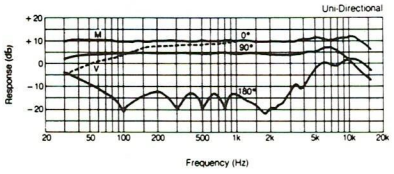
Studio Microphone

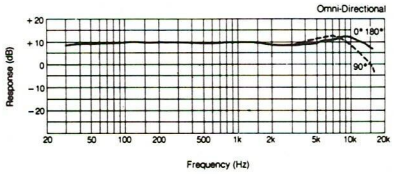
C-48

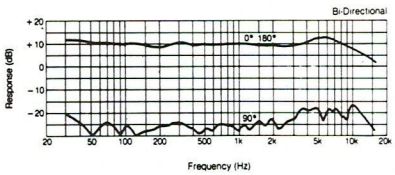


- Selectable directivity — uni-directional, omni-directional or bi-directional
- 2-way powering — internal battery (50 hours of continuous operation) or external power supply
- Suitable for vocal and instrumental recording
- 10dB attenuation switch

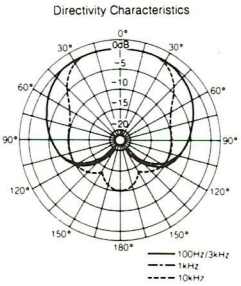
Frequency Response Characteristics

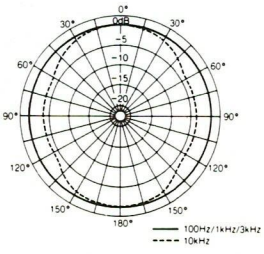


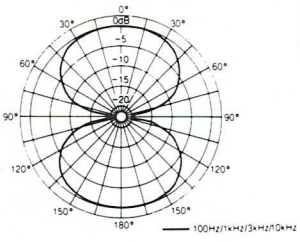




Directivity Characteristics

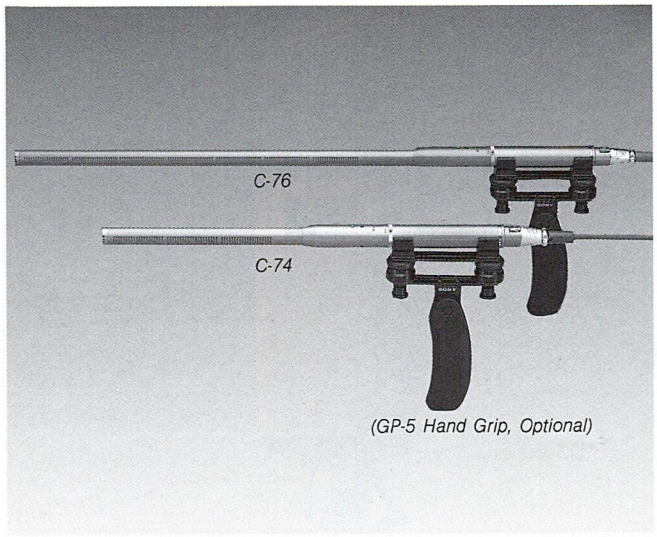




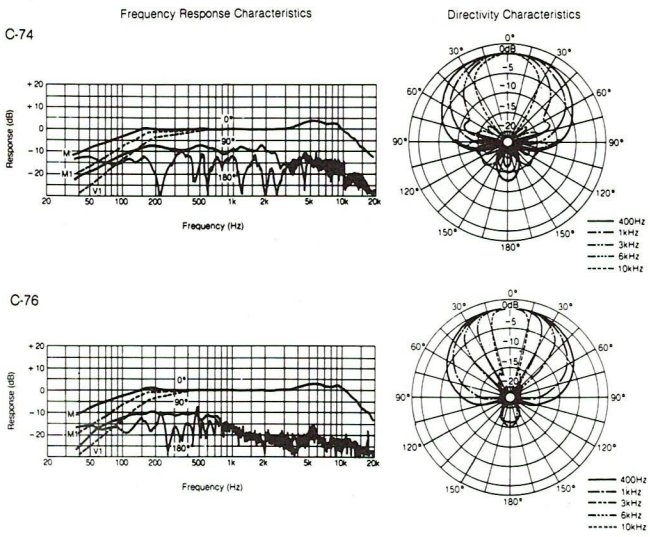


Uni-directional Microphone

C-74/C-76

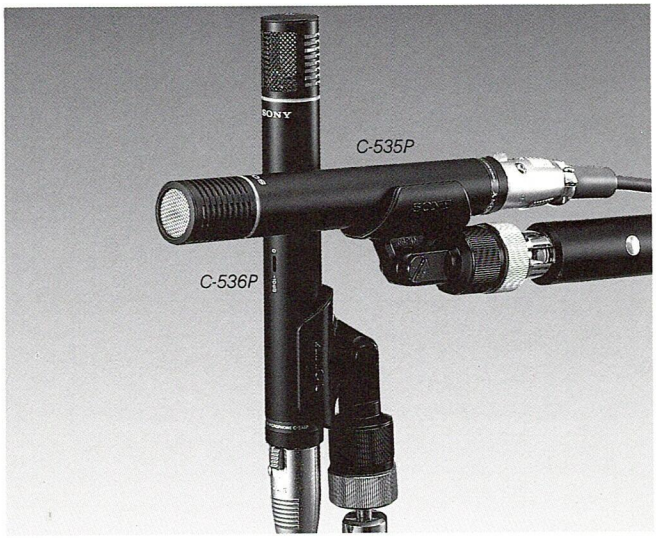


- Super-cardioid directional characteristics, rejecting indirect sound
- 2-way powering — internal battery (50 hours of continuous operation) or external power supply
- RF condenser design for low noise level

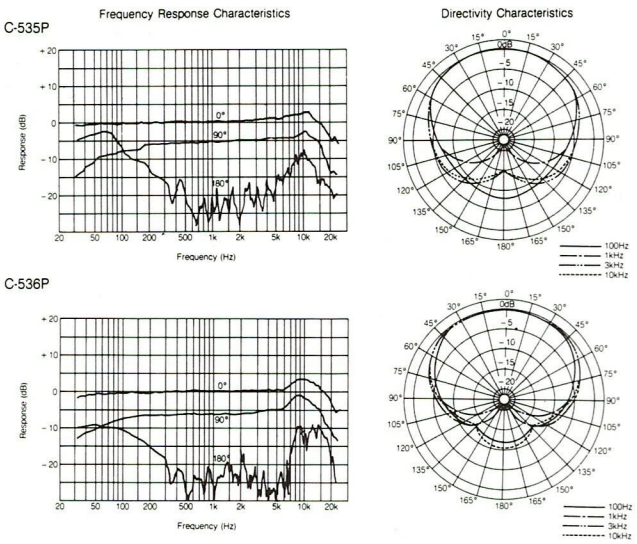


Uni-directional Microphone

C-536P



- Alternative uni-directional characteristics — C-535P, maximum sensitivity on microphone axis; C-536P, maximum sensitivity at right angles to microphone axis
- External power supply operation

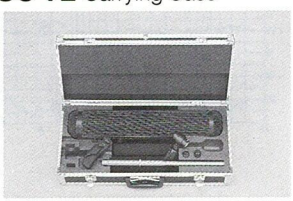


Optional Accessories

SC-76 Carrying Case

- For packing C-76 and accessories

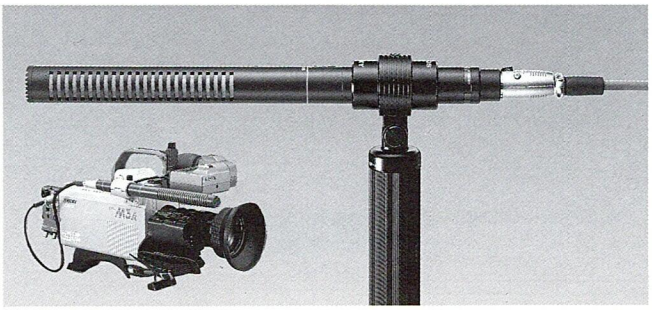
SC-72 Carrying Case



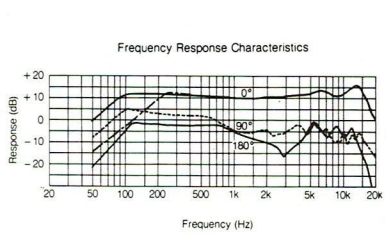
- For packing C-74, ECM-672 or ECM-MS5 and accessories

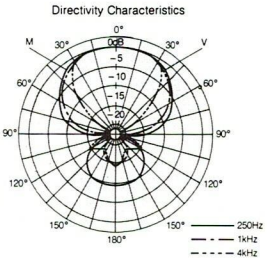
Uni-directional Microphone

ECM-672



- Super-cardioid directional characteristics, rejecting indirect sound
- 2-way powering — internal battery (3,000 hours of continuous operation) or external power supply
- 2-position low-cut filter
- Suitable for mounting on Sony Betacam and DXC series cameras

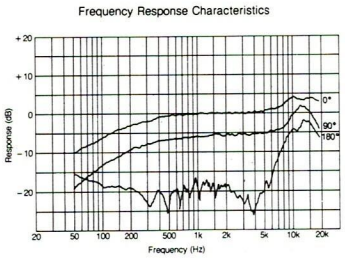


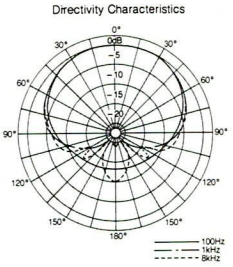


Uni-directional Microphone

ECM-530

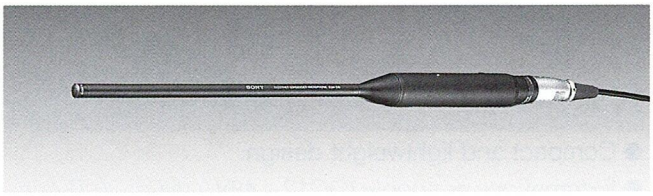
- Ideally suited for conference and lecture applications
- Compact and slim table-top microphone
- 2-way powering — AA-size battery or external power supply



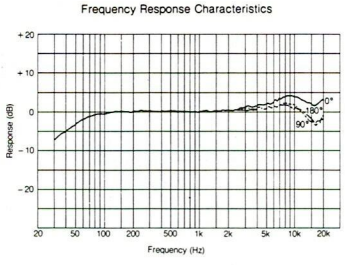


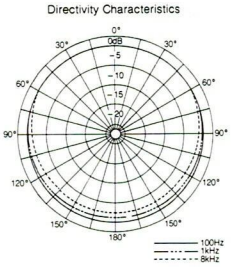
Interview Microphone

ECM-510



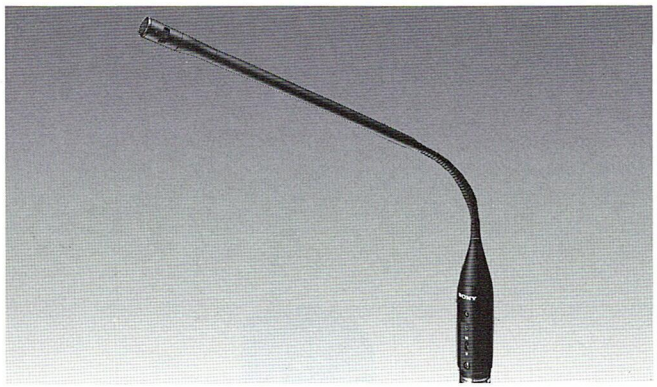
- Primarily for interview situations
- Ultra slim and lightweight body
- 2-way powering — internal AA-size battery or external power supply



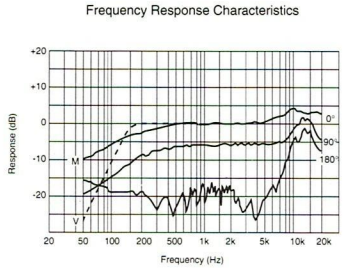


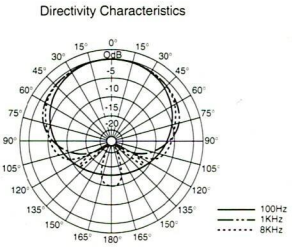
Uni-directional Microphone

ECM-531



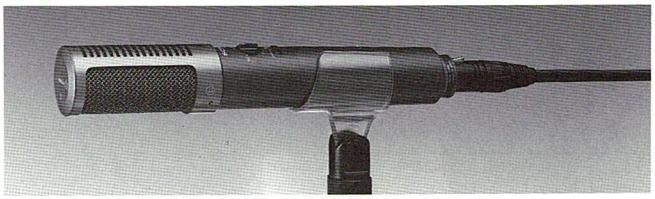
- Ideally suited for conference and lecture applications
- Flexible goose-neck for microphone positioning
- Equipped with a low-cut switch
- External power supply (DC 12V to 48V)
- Directly installed in conference tables and lecterns via an XLR-3-12C type connector



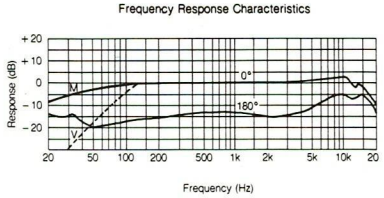


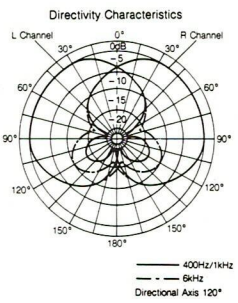
MS Stereo Microphone

ECM-999



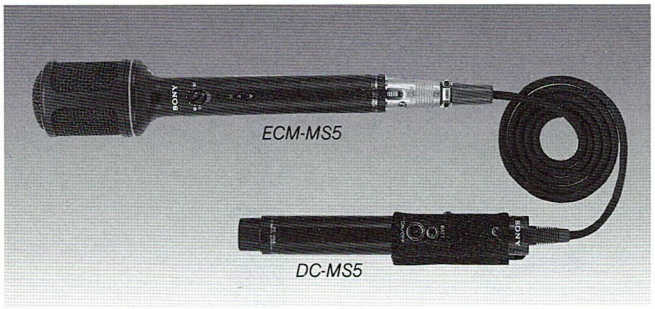
- Variable stereo angle (0° to 150°)
- Low-cut filter
- Battery operation



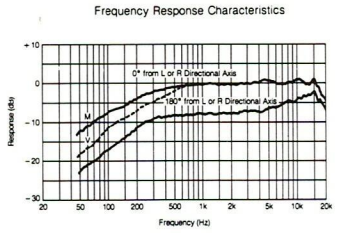


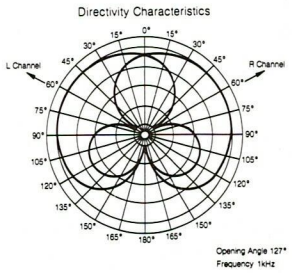
MS Stereo Microphone

ECM-MS5



- Compact and light MS (Mid-Side) stereo microphone
- 6-position stereo angle selector (0° to 127°)
- 2-way powering — external power supply or battery operation with optional DC-MS5

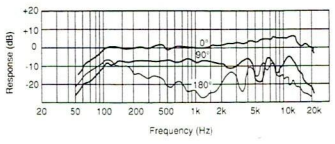

Frequency Response Characteristics
0° from L or R Directional Axis
180° from L or R Directional Axis
Response (dB)
Frequency (Hz)

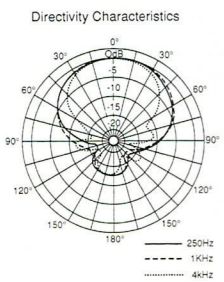


Electret Condenser Microphone

ECM-670

- Compact and lightweight design.
- External power supply (DC12~ 48V) via an XLR connector.
- A high-performance electret condenser microphone with super-cardiod characteristic.
- Low-cut switch provides a low frequency roll-off for optimum





Omni-directional Lavalier Microphones

ECM-77 Series

- ø 5.6 x 12.5mm (ø $^{1}/_{4}$ x $^{1}/_{2}$ inches), 1.5g (0.04 oz) microphone head
- High performance, frequency response 40Hz to 20,000Hz
- 2-way powering — AA-size battery or external power supply

ECM-77B (Black Finish)

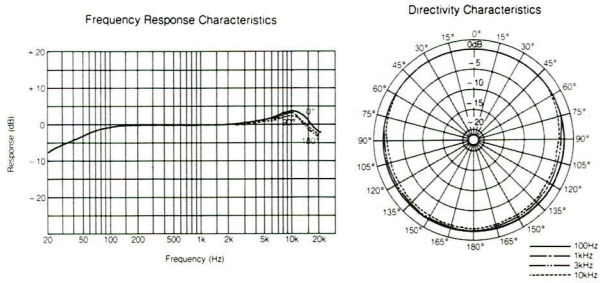
- Complete with in-line battery unit for 2-way powering

ECM-77BC (Black Finish)

- Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony wireless microphone system

ECM-77BPT (Black Finish)

- Pigtail connection, without battery unit or connector



Uni-directional Lavalier Microphones

ECM-66 Series

- ø10.6 x 24.3mm (ø $^{7}/_{16}$ x $^{31}/_{32}$ inches), 7g (0.24 oz) microphone head
- Designed for instrumental applications
- 2-way powering — AA-size battery or external power supply
- 130dB SPL max. input sound pressure level

ECM-66B (Black Finish)

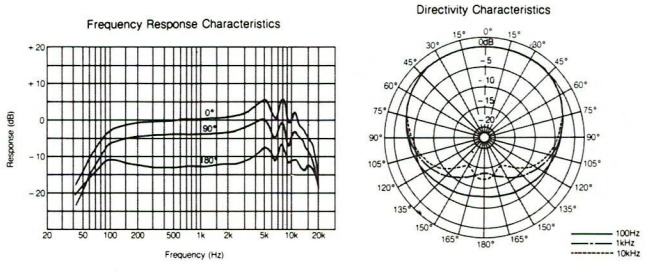
- Complete with in-line battery unit for 2-way powering

ECM-66BC (Black Finish)

- Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony wireless microphone system

ECM-66BPT (Black Finish)

- Pigtail connection, without battery unit or connector



Omni-directional Lavalier Microphones

ECM-55 Series

- ø10.6 x 21mm (ø $^{7}/_{16}$ x $^{27}/_{32}$ inches), 6.5g (0.2 oz) microphone head
- Frequency response tailored for enhanced presence and improved voice quality in lavalier applications
- 2-way powering — AA-size battery or external power supply

ECM-55B (Black Finish)

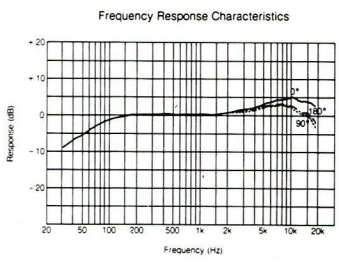
- Complete with in-line battery unit for 2-way powering

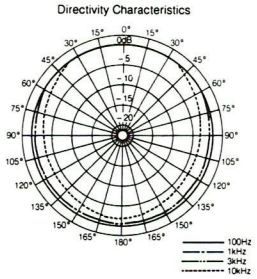
ECM-55BC (Black Finish)

- Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony wireless microphone system

ECM-55BPT (Black Finish)

- Pigtail connection, without battery unit or connector





Omni-directional Lavalier Microphones

ECM-44 Series

- ø8.5 x 14.5mm (ø $^{11}/_{32}$ x $^{19}/_{32}$ inches), 2g (0.07 oz) microphone head
- Excellent cost/performance ratio
- Battery operation

ECM-44S (Satin-Nickel Finish)/ECM-44B (Black Finish)

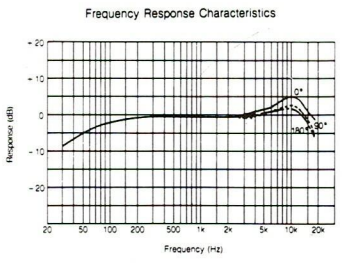
- Complete with in-line battery unit for 2-way powering

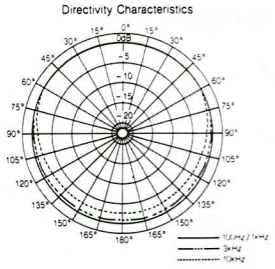
ECM-44SC (Satin-Nickel Finish)/ECM-44BC (Black Finish)

- Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony wireless microphone system

ECM-44SPT (Satin-Nickel Finish)/ECM-44BPT (Black Finish)

- Pigtail connection, without battery unit or connector





Uni-directional Lavalier Microphone

ECM-166BC

- ø12.5 x 23.5mm (ø $^{1}/_{2}$ x $^{15}/_{16}$ inches), 3.5g (0.12 oz) microphone head
- Uni-directional
- External power supply operation

Dynamic Microphones

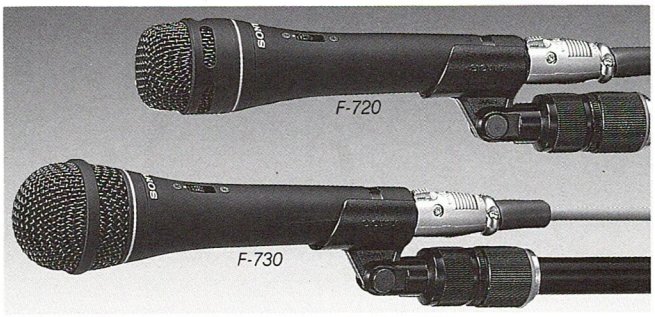
Uni-Directional Microphones

F-780

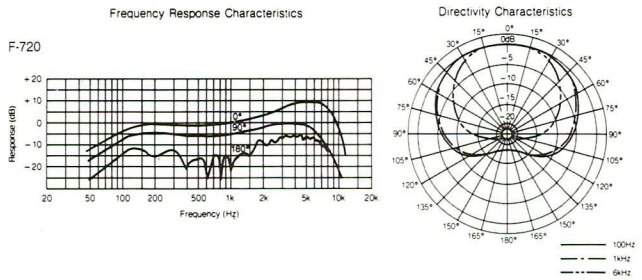
- Designed specifically for critical vocal reproduction in music recording and live performance
- Rigid structure allows easy movement of capsule for higher sensitivity and reduced mechanical noise
- Urethane coating for extremely low handling noise
- Uni-directional polar pattern

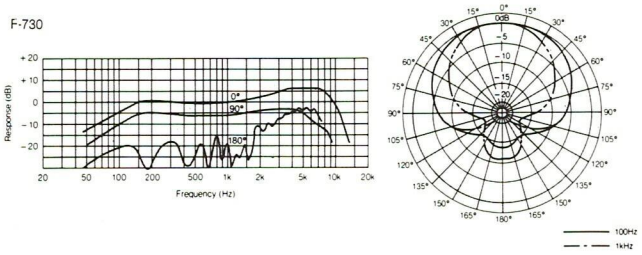
Uni-directional Microphones

F-720/F-730



- F-720 for general applications: F-730 for vocal applications





Uni-Directional Microphones

F-740

- Suitable for both musical instruments and vocal reproduction
- Employs same rigid structure of capsule and body as F-780
- Superb sound quality and high sensitivity
- Low handling noise

Uni-Directional Microphones

F-710

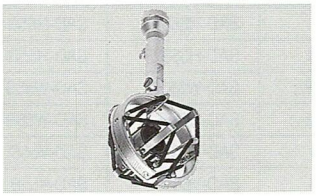
- Affordable multi-purpose dynamic mic with high sonic quality
- Suitable for voice and instrument pick-up
- High sensitivity

Microphone Accessories

AC-148F AC Power Supply

- System: 2-channel external power supply
- Power requirements: AC 100 to 120V, 220 to 240V, 50/60Hz
- Output voltage: DC 48V
- Dimensions: 201 (W) x 74 (H) x 169 (D) mm (8 x 3 x 6 3/4 inches)
- Weight: 2kg (4 lb 7 oz)

CRS-3P Cradle Suspension



- Available screw: PF 1/2 - inch thread
- Supplied stand screw adaptor: NS 5/8 - inch thread
- Grip: ø19 to 24mm (ø 3/4 to 31/32 inches)
- Weight: 150g (5.3 oz)

EC-10XLR2/5XLR2

Microphone Cable

- Cable length: 10m (329 3/4 inches) or 5m (164 7/8 inches)
- Connectors: XLR-3-11C type ↔ XLR-3-12C type

Batteries

Sony	IEC	MEDA No.	Eveready	Voltage
S-006P(U)	6F-22	1604	216	9V
006P (alkaline)	—	1604A	522	9V
7MR9	7MR9	—	—	9.45V
SUM-1(NS)	P20	13D	1250	1.5V
SUM-3(NS)	R6P	15D	1215	1.5V
AM3	LR6	15A	E91	1.5V
UM-5	LR1	910A	E90	1.5V

Application and Suitability

Areas of Application	Model	Examples of Application
Music Recording	C-536P	Musical Instruments: Violin, Cello, Harp, Guitar Saxophone, Trumpet, Trombone, Flute, Chorus
	C-48	Strings
	C-38B	Bass Drum, Timpani, Percussion, Electric Bass Guitar
	ECM-66	Contact for Musical Instruments: Trumpet, Saxophone, Flute
	ECM-77	Contact for Musical Instruments: Violin, Viola
TV/Radio Station	C-48	Speech (Disc Jockey), Musical Instruments (Refer to Music Recording)
	C-536P	Musical Instruments (Refer to Music Recording)
	C-76/74 ECM-672 ECM-MS5	Drama, ENG (Mounting on Camera), Ambience Sound for Live Sports, Interview
	ECM-510	ENG, Interview
	ECM-55	Speech, Interview
	ECM-66/77	Musical Instruments (Refer to Music Recording)
Sound Reinforcement (Stage, Concert Hall, etc.)	C-536P	Drums (Overhead, Snare, Toms), Contrabass
	C-48	Strings
	ECM-66/77	Contact for Musical Instruments (Refer to Music Recording)
	C-76/74 ECM-672 ECM-MS5	Ambience Sound
Audio Production House Film Production House	C-76/74	Ambience Sound, Outdoor Location
	ECM-672	Ambience Sound, Outdoor Location, Mounting on Camera
	ECM-MS5 ECM-999	Stereo Ambience Sound
Video/Audio Production	F-720	Speech
	F-730	Vocal
	ECM-44	Speech, Interview, Contact for Musical Instruments
Institutional Use (Assembly Hall, Enterprise, etc.)	ECM-530/531 F-720	Speech, Conference Recording, Interview, Paging, Public Address
	F-730	Speech (Hand-Held), On-Stage Vocal
	ECM-44	Speech, Interview
	ECM-166BC	Speech, Conference Recording
	ECM-672	Mounting on Camera

Lavalier Microphones

Holder Clips and Wind Screens

	Type		Finish	ECM-77	ECM-66	ECM-55	ECM-44	Remarks
Holder Clip	Single (Horizontal)		Satin Nickel	SAD-H77S	SAD-H55S	SAD-H55S	SAD-H44S	10 pcs in each package
			Black	SAD-H77B	SAD-H55B	SAD-H55B	SAD-H44B	
	Double (Horizontal)		Satin Nickel	SAD-W77S	SAD-W55S	SAD-W55S	SAD-W44S	6 pcs in each package
			Black	SAD-W77B	SAD-W55B	SAD-W55B	SAD-W44B	
	Single (Vertical)		Satin Nickel	SAD-V77S	SAD-V55S	SAD-V55S	SAD-V44S	10 pcs in each package
			Black	SAD-V77B	SAD-V55B	SAD-V55B	SAD-V44B	
	Pencil Type		Satin Nickel	SAD-P77S	SAD-P55S	SAD-P55S	SAD-P44S	4 pcs in each package
			Black	SAD-P77B	SAD-P55B	SAD-P55B	SAD-P44B	
	Safety Pin Type		Satin Nickel	SAD-S77	SAD-S55	SAD-S55	SAD-S44	6 pcs in each package
	Tiepin Type		Satin Nickel	SAD-T77	SAD-T55	SAD-T55	SAD-T44	6 pcs in each package
	Necklace Type		Satin Nickel	SAD-N77	SAD-N55	SAD-N55	SAD-N44	1 pc in each package
Power Supply Holder			Satin Nickel	SAD-B100				3 pcs in a package
Wind Screen	Metal		Satin Nickel	AD-R77S	—	AD-R55S	—	6 pcs in each package
			Black	AD-R77B	—	AD-R55B	—	
	Urethane		Gray	—	AD-R66S	—	AD-R44S	12 pcs in each package
			Black	—	AD-R66B	—	AD-R44B	
	Urethane		6 colors	AD-C77	AD-C66	AD-C55	AD-C44	12 pcs in each package (6 colors x 2 pcs)

Lavalier Microphones

Specifications

		ECM-77	ECM-66	ECM-55	ECM-44	ECM-166BC
Capsule type		Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser
Frequency response		40 ~ 20,000Hz	70 ~ 14,000Hz	30 ~ 18,000Hz	40 ~ 15,000Hz	100 ~ 10,000Hz
Directivity		OMNI	UNI	OMNI	OMNI	UNI
Sensitivity (0dB=1V/Pa,at 1kHz.)		–52.0dB ±2dB	–50.0dB ±2dB	–52.0dB ±2dB	–53.0dB ±3dB	—
Output impedance at 1kHz		150Ω ±20% (Balanced)	100Ω ±20% (Balanced)	100Ω ±20% (Balanced)	250Ω ±20% (Balanced)	—
Dynamic range		≥ 90dB	≥ 101dB	≥ 98dB	≥ 90dB	—
Signal-to-noise ratio (A weighted, 1kHz, 1 Pa.)		≥ 64dB	≥ 65dB	≥ 66dB	≥ 62dB	—
Inherent noise (0dB SPL=20μPa.)		≤ 30dB SPL	≤ 29dB SPL	≤ 28dB SPL	≤ 32dB SPL	—
Wind noise (w/wind screen)		≤ 40dB SPL	≤ 50dB SPL	≤ 40dB SPL	≤ 40dB SPL	—
Induction noise from ext. magnetic field		≤ 5dB SPL/1 x 10^{-7}T	≤ 5dB SPL/1 x 10^{-7}T	≤ 5dB SPL/1 x 10^{-7}T	≤ 5dB SPL/1 x 10^{-7}T	—
Maximum input sound pressure level		120dB SPL	130dB SPL	126dB SPL	122dB SPL	—
Microphone cable		3m	3m	3m	3m	1.2m
Output connector		XLR-3-12C TYPE	XLR-3-12C TYPE	XLR-3-12C TYPE	XLR-3-12C TYPE	SMC9-4P TYPE
Power supply	Battery	SUM-3(NS) (1.5V)	SUM-3(NS) (1.5V)	SUM-3(NS) (1.5V)	SUM-3(NS) (1.5V)	—
	Battery Life	Approx. 5,000H	Approx. 300H	Approx. 5,000H	Approx. 5,000H	—
	Ext. power	DC48V	DC48V	DC48V	—	—
Dimensions	Microphone head	ø 5.6 x 12.5 mm (ø 1/4 x 1/2 inches)	ø 10.6 x 24.2 mm (ø 7/16 x 31/32 inches)	ø 10.6 x 21 mm (ø 7/16 x 27/32 inches)	ø 8.5 x 14.5 mm (ø 11/32 x 19/32 inches)	ø 12.5 x 23.5 mm (ø 1/2 x 15/16 inches)
	Power unit	ø 20.0 x 133 mm (ø 13/16 x 5 1/4 inches)	ø 20.0 x 163 mm (ø 13/16 x 6 1/2 inches)	ø 20.0 x 133 mm (ø 13/16 x 5 1/4 inches)	ø 20.0 x 126 mm (ø 13/16 x 5 inches)	—
Weight	Microphone head	Approx. 1.5g (0.053 oz)	Approx. 7g (0.25 oz)	Approx. 6.5g (0.23 oz)	Approx. 2g (0.07 oz)	3.5g (0.12 oz)
	Total	Approx. 121.5g (4.3 oz)	Approx. 167g (5.9 oz)	Approx. 126.5g (4.5 oz)	Approx. 121g (4.3 oz)	25g (1 oz)
Supplied accessories		S.H. holder clip .....1 S.V. holder clip..... 1 M wind screen ..... 1 Microphone case..... 1	S. H. holder clip ..... 1 S.V. holder clip..... 1 M wind screen..... 1 Microphone case..... 1	S.H. holder clip..... 1 S.V. holder clip ..... 1 M wind screen..... 1 Microphone case 1	S.H. holder clip..... 1 U wind screen ..... 1 Microphone case 1	Wind screen..... 1 holder clip 1

S: Single type V: Vertical type H: Horizontal type M: Metal-mesh type U: Urethane foam type

Specifications

C-Series

Model		C-800G	C-800	C-48	C-76	C-74	C-536P
Capsule type		Condenser	Condenser	Condenser	Condenser	Condenser	Condenser
Frequency response (Hz)		20 ~ 18,000	20 ~ 20,000	30 ~ 16,000	40 ~ 16,000	40 ~ 16,000	30 ~ 16,000
Directivity		UNI/OMNI	UNI/OMNI	UNI/OMNI	UNI	UNI	UNI
Effective output level at 1kHz (dBm) (0dBm=1mW/1 Pa.) *1		-28.0 (Uni) -31.0 (Omnil)	-44.0 (Uni) -46.0 (Omni)	-38.8 (Uni)	-38.0	-38.0	-40.0
Sensitivity (dB) (0dB=1V/1 Pa, at 1kHz)		-32.0 ± 2.0 (Uni) -35.0 ± 2.0 (Omni)	-45.0 ± 2.0 (Uni) -47.0 ± 2.0 (Omni)	-41.0 ± 2.0 (Uni)	-38.0 ± 2.0	-38.0 ± 2.0	-41.0 ± 2.0
Output impedance at 1kHz (balanced) (Ω ± 20%)		100	200	150	250	250	200
Dynamic range (dB)		≥ 113	≥ 126	≥ 106	≥ 112	≥ 112	≥ 116
Signal-to-noise ratio (dB) (A weighted, 1kHz, 1Pa.)		≥ 76 (Uni) ≥ 73 (Omni)	≥ 70(Uni) ≥ 68 (Omni)	≥ 72	≥ 80	≥ 80	≥ 72
Inherent noise *2 (dB SPL)		≤ 18 (Uni) ≤ 21 (Omni)	≤ 24 (Uni) ≤ 26 (Omni)	≤ 22	≤ 14	≤ 14	≤ 22
Induction noise from ext. magnetic field*2 (dB SPL/1 x 10^{-7}T)		≤ 0	≤ 0	≤ 0	≤ 5	≤ 5	≤ 5
Wind noise (dB SPL)*2		≤ 50	≤ 55	≤ 47	≤ 50	≤ 50	≤ 60 (536P)
Max. input sound pressure level (dB SPL)*2		131 (Uni) 134 (Omni)	150 (Uni) 152 (Omni)	128	126	126	138
Mic attenuator (dB)		—	—	-10	—	—	-10
Tone control	Low-cut	—	—	M,V	M, M1, V1	M, M1, V1	—
	High-cut	—	—	—	—	—	—
Power supply	Battery	—	—	S-006P (U)	7MR9	7MR9	—
	Ext. power	—	—	O	O	O	O
Standard operating voltage (V) (approx.)	Battery	—	—	9	9	9	—
	Ext. power	—	—	DC48	DC24-48	DC24-48	DC48
Current drain (mA) (approx.)	Battery	—	—	≤ 5	≤ 5	≤ 5	—
	AC power	—	—	≤ 1	≤ 9	≤ 9	≤ 2
Dimensions (approx.)	mm	φ 57 x 191 x 237	φ 57 x 196	φ 54 x 229 x 40	φ 25 x 678	φ 25 x 427	φ 21 x 154
	inch	φ 2¼ x 7⅜ x 9⅜	φ 2¼ x 7¾	φ 2¼ x 9⅛ x1⅝	φ 1 x 26 11/16	φ 1 x 16 13/16	φ 27/32 x 6⅛
Weight*5 (approx)	g	900	590	550	420	360	148 (536P)
	lb/oz	2/0	1/5	1/4	0/14.8	0/12.7	0/5.3 (536P)
Supplied accessories*3		Wind screen.....1 Cradle suspension..1 Microphone Stand screw adaptor.1 Holder .....1 (PF 1/2→NS 5/8).....1 Mic cable .....1 Carrying case.....1 G Sticker.....1 Frequency response chart.....2	Wind screen.....1 Cradle suspension...1 Stand screw adaptor.1 (PF 1/2→NS 5/8).....1 Mic cable .....1 Carrying case .....1 Screwdriver.....1 Frequency response chart.....2	Carrying case .....1 Stand adaptor 2	Wind screen.....1	Wind screen.....1	Wind screen.....1
Remarks		Vacuum Tube	Vacuum Tube	—	Shotgun Microphone	Shotgun Microphone	—

*1 1 Pa. = 10μbar
*2 0dB = 20μPa.
*3 In some areas, the battery may not be included. Refer to page 10-10 for interchangeable batteries.
*4 With the optional DC-MS5 DC power supply unit.
*5 Without the battery for condenser and electret condenser microphones.

Specifications

Model	C-800G	C-800	C-48	C-76	C-74	C-536P
Microphone connector	CNR-01 type (7-pin)	XLR-6A type	XLR-3-12C TYPE	XLR-3-12C TYPE	XLR-3-12C TYPE	XLR-3-12C TYPE
Supplied cable	JIS CN01 type (7-pin)	XLR-6A-11C type ↔ XLR-6A-12C type	—	—	—	—
Cable length	8m	8m	—	—	—	—
Available receptacle	—	—	XLR-3-11C TYPE	XLR-3-11C TYPE	XLR-3-11C TYPE	XLR-3-11C TYPE
External power supply (AC-148F) or equivalent	—	—	Yes	Yes	Yes	Yes
Recommended Sony battery	—	—	S-006P (U)	7MR9 (Mercury)	7MR9 (Mercury)	—
Battery life	—	—	50H	50H	50H	—
Supplied mic holder	—	—	—	—	—	Yes
Stand screw/ Mic holder screw	PF ½-inch thread	PF ½-inch thread	PF ½-inch thread	—	—	PF ½-inch thread
Supplied stand adaptor	NS ⅝-inch thread W ⅜-inch thread	NS ⅝-inch thread W ⅜-inch thread	NS ⅝-inch thread W ⅜-inch thread	—	—	NS ⅝-inch thread W ⅜-inch thread

Specifications
ECM-Series

Model		ECM-672 ECM-670	ECM-MS5	ECM-999	ECM-510	ECM-530	ECM-531
Capsule type		Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser
Frequency response (Hz)		50 ~ 16,000 70 ~ 16,000	70 ~ 20,000	20 ~ 20,000	40 ~ 17,000	70 ~ 18,000	70 ~ 18,000
Directivity		UNI	UNI	UNI	OMNI	UNI	UNI
Effective output level at 1kHz (dBm) (0dBm=1mW/1 Pa.) *1		-42.0	-37.8 (0) -34.8 (127)	-51.0(120)	-50.0	-46.8	-42.8
Sensitivity (dB)		-42.0 ± 2.0 -44.0 ± 3.0	-40.0 ± 2.0(0)	-48.0 (120)	-50.0 ± 2.0	-49.0 ± 2.0	-49.0 ± 3.0
Output impedance at 1kHz (balanced) (Ω ± 20%)		250 200	150	480	250	150	60
Dynamic range (dB)		≥ 92 ≥ 101	≥ 108	≥ 104	≥ 97	≥ 95	≥ 100
Signal-to-noise ratio (dB) (A weighted, 1kHz, 1Pa.)		≥ 72 ≥ 70	≥ 74(o°) ≥ 72 (127°)	≥ 68(120°)	≥ 65	≥ 63	≥ 64
Inherent noise *2 (dB SPL)		≤ 22 ≤ 24	≤ 20 (0°) ≤ 22 (127°)	≤ 26(120°)	≤ 29	≤ 31	≤ 30
Induction noise from ext. magnetic field*2 (dB SPL/1 x 10^{-7}T)		≤ 0 ≤ 0	≤ 0	≤ 10	≤ 5	≤ 5	≤5
Wind noise (dB SPL)*2		≤ 45 ≤ 60	≤ 54	≤ 50	≤ 40	≤ 55	≤ 57
Max. input sound pressure level (dB SPL)*2		114 125	130	130	126	126	130
Mic attenuator (dB)		—	—	—	—	—	—
Tone control	Low-cut	M,V	M,V	M,V	—	–	M,V
	High-cut	—	—	—	—	—	—
Power supply	Battery	IECR6 or LR6	0	SUM-3 (NS)	IECR6	IECR6	—
Standard operating voltage (V) (approx.)	Ext. power	0 DC 12-48	0	—	O	O	O
	Battery	1.5	1.5	1.5	1.5	1.5	—
	Ext. power	DC 48	DC 12-48	—	DC 12-48	DC 14-48	DC 12-48
Current drain (mA) (approx.)	Battery	≤ 0.3	≤ 1.75 x 2	≤ 11.0	≤ 0.23	≤ 0.23	—
	AC power	≤ 0.5	≤ 2 x 2	—	≤ 2	≤ 2	≤ 2
Dimensions (approx.)	mm	ϕ 24 x 304 ϕ 21 x 226mm	ϕ 47.5 x 212	ϕ 40 x246	Max. ϕ 23	ϕ 12 x 315	ϕ 12 x 482 (max.)
	inch	ϕ 31/32 x 12	ϕ 1 7/8 x 8 3/8	ϕ 1 5/8 x 9 3/4	Max. ϕ 23 29/32 ϕ 1 1/32 x 14 3/8	ϕ 31/32 x 12 1/2 ϕ 3 1/2 (Table stand)	ϕ 1/2 x 19 (max.) ϕ 1/2 x 14 1/8
Weight *5	g	230 165	215	366	125	320	130
	lb/oz	0/8.1 0/5.8	0/7.6	0/13	0/4.4	0/11.3	0/4.6
Supplied accessories *3		Wind screen...1	Wind screen.....1 Microphone holder.....1 Microphone cable...1 Stand adapter.....2	Wind screen.....1 Microphone holder.....1 Microphone cable.....1 Stand adapter.....1 Microphone cable.....1	Wind screen.....1 Microphone holder.....2	Wind screen.....1 Microphone	Wind screen.....1 Microphone
Remarks		Short Shotgun	MS Stereo	MS Stereo	—	—	—

*1 1 Pa. = 10μbar
*2 0dB = 20μPa.
*3 In some areas, the battery may not be included. Refer to page 10-10 for interchangeable batteries.
*4 With the optional DC-MS5 DC power supply unit.
*5 Without the battery for condenser and electret condenser microphones.

Specifications

ECM-Series Cont.

Model	ECM-672	ECM-MS5	ECM-999	ECM-510	ECM-530	ECM-531
Microphone Connector	XLR-3-12C TYPE	XLR-5-12C TYPE	XLR-5-12C TYPE	XLR-3-12C TYPE	–	XLR-3-12C TYPE
Supplied cable	–	XLR-5-11C XLR-3-12C	XLR-5-11C TYPE XLR-3-11C TYPE	–	XLR-3-12C TYPE	–
Cable length	–	3m	2.5m	–	2m	–
Available receptacle	XLR-3-11C TYPE	XLR-3-11C TYPE	XLR-3-11C TYPE	XLR-3-11C TYPE	XLR-3-11C TYPE	XLR-3-11C TYPE
External power supply (AC-148F) of equivalent	Yes	Yes	No	Yes	Yes	Yes
Recommeded Sony battery	SUM-3 (NS)	LR6 (Alkaline)	SUM-3 (NS)	SUM-3 (NS)	SUM-3 (NS)	–
Battery life	3,000H	20H	80H	5,000H	5,000H	–
Supplied mic holder	–	Yes	Yes	Yes	–	–
Stand screw/ Mic holder screw	–	PF ½ -inch thread	PF ½ -inch thread	PF ½ -inch thread	–	–
Supplied stand adaptor	–	NS ⅝ -inch thread W ⅜ -inch thread	NS ⅝ -inch thread W ⅜ -inch thread	NS ⅝ -inch thread W ⅜ -inch thread	– –	– –

Specifications

F-Series

Model	F-710	F-720	F-730	F-740	F-780
Capsule type	Dynamic	Dynamic	Dynamic	Dynamic	Dynamic
Frequency response (Hz)	70~15,000	50~13,000	50~13,000	50~15,000	50~18,000
Directivity	Uni	Uni	Uni	Uni	Uni
Effective output level at 1kHz, (dBm) (0dBm=1mW/1 Pa.) *1	—	-60.0	-59.0	—	—
Sensitivity (dB) (0dB=1V/1 Pa. at 1kHz)	-54.0 ± 3.0	-57.0 ± 3.0	-56.0 ± 3.0	-54.0 ± 2.0	-53.0 ± 2.0
Output impedance at 1kHz (balanced) (Ω ±20%)	400	500	500	350	400
Dynamic range (dB)	—	—	—	—	—
Signal-to-noise ratio (dB) (A-weighted, 1kHz, 1Pa)	—	—	—	—	—
Inherent noise *2 (dB SPL)	—	—	—	—	—
Induction noise from ext. magnetic field *2 (dB SPL/1 x 10^{-7} T)	≤ 5	≤ 10	≤ 10	≤ 5	≤ 5
Wind noise (dB SPL) *2	≤ 45	≤ 55	≤ 45	≤ 45	≤ 45
Dimensions mm	ø 54 x 177	ø 36.6 x 160	ø 44.4 x 166	ø 51 x 165	ø 51 x 165
inches	ø 2¼ x 7	ø 1½ x 6⅜	ø 1¾ x 6⅝	ø 2⅛ x 6½	ø 2⅛ x 6½
Weight g	240	260	250	290	290
lb/oz	0/8.5	0/9.2	0/8.8	0/10.2	0/10.2
Supplied accessories *3	Microphone holder.....1 Stand adaptor.....2	Microphone holder.....1 Stand adaptor.....2	Microphone holder.....1 Stand adaptor.....2	Microphone holder.....1 Stand adaptor.....2	Microphone holder.....1 Stand adaptor.....2

SECTION 12

UHF Wireless Microphones

800 Series UHF Synthesized Wireless Microphone System

WRT-810A UHF Wireless Microphone 12-1
WRT-830A UHF Wireless Microphone 12-1
WRT-867A UHF Wireless Microphone 12-1
WRT-820A UHF Synthesized Transmitter 12-2
WRT-860A UHF Synthesized Transmitter 12-2
WRR-860A UHF Synthesized Diversity Tuner 12-2
WRR-810A UHF Synthesized Tuner 12-2
WRR-840A UHF Synthesized Diversity Tuner 12-3
WRR-820A UHF Synthesized Diversity Tuner 12-3
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AN-820A UHF Antenna 12-3
K-1234 Tuner Base Unit 12-4
K-1236 UHF Antenna 12-4
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WP-27 UHF Power Amplifier 12-7
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PB-36 Portable Base Unit 12-8
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WB-57A UHF Antenna Booster 12-8
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UHF Synthesized Wireless Microphone System

UHF Synthesized Wireless Microphone

WRT-810A (68), (66), (64)

- Easy access to up to 94 selectable frequencies in the 800mHz UHF band range
- PLL synthesized control transmission
- Selectable RF output - either 2.5 or 10mW
- 8 hours continuous operation with 2 AA-Size (LR6) Alkaline Batteries
- Easy-to-read LCD display
- Rugged housing, unique cosmetic design
- Compander system
- Built-in talk switch

UHF Synthesized Wireless Microphone

WRT-867A (68)

- Easy access to up to 94 selectable frequencies in the 800mHz UHF band range
- PLL synthesized control transmission
- Uni-directional dynamic microphone capsule in a resilient body structure for extremely high quality sound
- Incorporates a high quality edgewise-winding voice coil with lightweight CCAW (Copper Clad Aluminum Wire) and AINiCo magnet which provides powerful, crisp and clear sound as well as presence in the middle and high frequency range for critical vocal recording.
- 4 hours continuous operation with 1 AA-size battery
- LED power monitor
- Compander system for longer working distance
- 10mW transmitting power

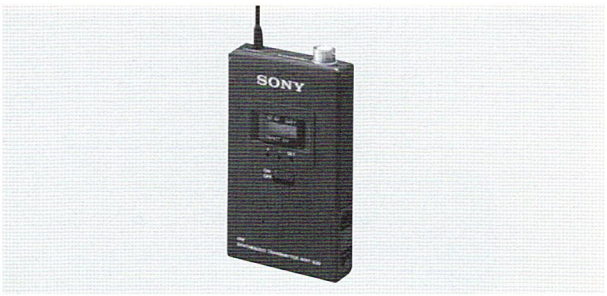
UHF Synthesized Wireless Microphone

WRT-830A (68)

- Easy access to up to 94 selectable frequencies in the 800mHz UHF band range
- High quality sound for vocals
- Simultaneous multi-channel operation
- PLL synthesized control transmission
- Low handling noise due to the electret capsule
- Selectable RF output
- RF carrier with tone signal
- Easy-to-read LCD indication
- Rugged housing, unique cosmetic design
- 8 hours continuous operation with 2 AA-size (LR6) alkaline batteries

UHF Synthesized Transmitter

WRT-820A (68), (66), (64)



- Easy access to up to 94 selectable frequencies in the 800mHz UHF band range
- Compact and lightweight
- PLL synthesized control transmission
- Lavalier microphones capability
- 8 hours continuous operation with 2 AA-size (LR6) alkaline batteries
- Easy-to-read LCD display

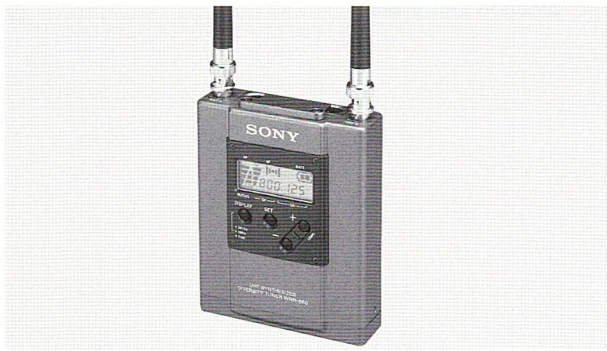
UHF Synthesized Transmitter

WRT-860A

- Easy access to up to 94 selectable frequencies in the 800mHz UHF band range
- Miniature, lightweight design
- Rugged construction
- Detachable antenna
- Battery level meter
- Operates on 2 AA-size batteries
- 20mW transmitting power

UHF Synthesized Diversity Tuner

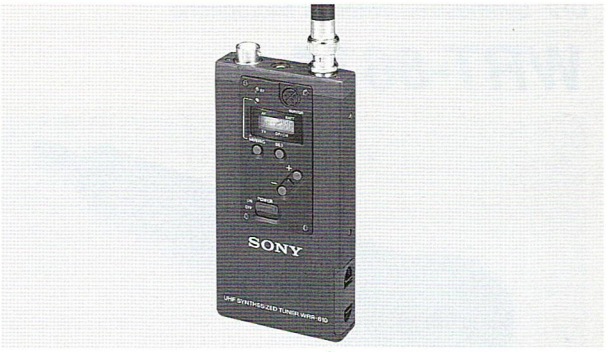
WRR-860A



- Easy access to up to 94 selectable frequencies in the 800mHz UHF band range
- Space diversity reception system
- PLL synthesized control transmission
- Pre-programmed channel plans
- Extensive easy-to-read LCD indication
- Switchable muting RF level
- Rugged, compact, lightweight and easy to mount on Betacam SP camcorders
- Up to 6 hours of operation with AA-size batteries
- Capable of supplying power from camcorders with a DC output
- Output sound can be monitored with supplied earphone

UHF Synthesized Tuner

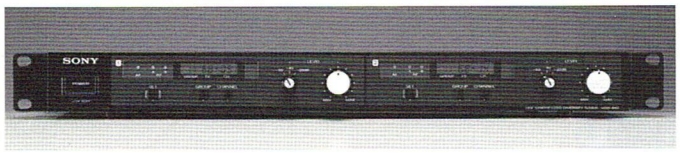
WRR-810A



- Easy access to up to 94 selectable frequencies in the 800mHz UHF band range
- PLL synthesized control transmission
- Pre-programmed channel plans
- Easy-to-read LCD indication
- Switchable muting RF level
- Compact, lightweight and easy to mount on Betacam SP camcorders
- Up to 6 hours of operation with AA-size batteries
- Output sound can be monitored with supplied earphone
- Tone squelch circuitry control for accurate audio reproduction
- Compander system for wide dynamic range and low noise
- Covers TV channels 68 and 69 frequency allocations
- Capable of supplying power from camcorders with a DC output

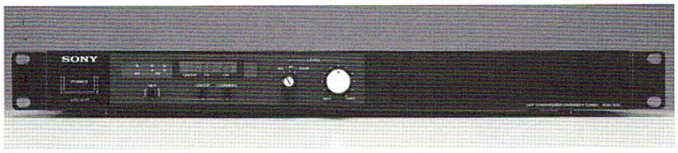
UHF Synthesized Diversity Tuner with Dual Reception System

WRR-840A (68), (66), (64)



UHF Synthesized Diversity Tuner with Dual Reception System

WRR-820A (68), (66), (64)



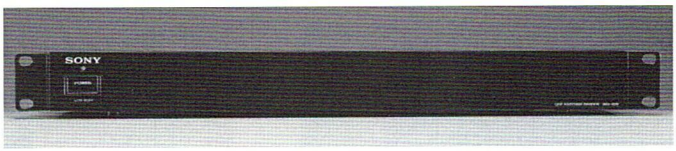
- PLL Synthesized Tuning control ensures easy handling of 94 frequencies.
- Diversity reception for superb stability eliminates noise and signal dropout.
- Convenient pre-programmed channels plans are factory preset in the tuners for multi-channel operational use.
- Three selectable output levels -60dB, -40dB or -20dB for flexible interfacing with other audio equipment, such as a mixer, audio recorder or amplifier.

WRR-840A (rear panel)

WRR-820A (rear panel)

UHF Antenna Divider

WD-820A



- Connection of up to 4 diversity distribution output when using a pair of AN-820A antennas, the WD-820A can receive RF signals from a WRT-810A, WRT-830A or WRT-820A and distribute them to up to four WRR-840A or WRR-820A tuners.
- Connection of up to 4 AN-820A antennas, expanding the operating area.

WD-820A (rear panel)

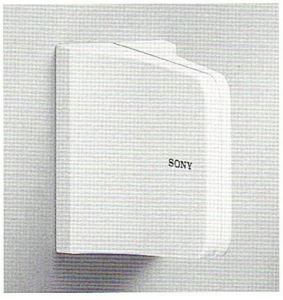
Omni-directional Lavalier Microphone

ECM-77BC/FC

- φ5.6 x 12.5mm (φ¼ x ½ inches), 1.5 g (0.04 oz) microphone head
- High performance, frequency response 40Hz to 20,000Hz
- Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony wireless microphone system

UHF Antenna

AN-820A



Built-in Amplifier
The AN-820A incorporates an amplifier which compensates for signal deterioration caused by cable transmission and distribution.

- Easy Installation on a Wall or in a Microphone Stand with the Supplied Stand Adaptor
- Unique and Inconspicuous Design
- LED Indication for Installation Check
- External Power Supply Provided from the WRR-820A/840A or the WD-820A via Coaxial Cable

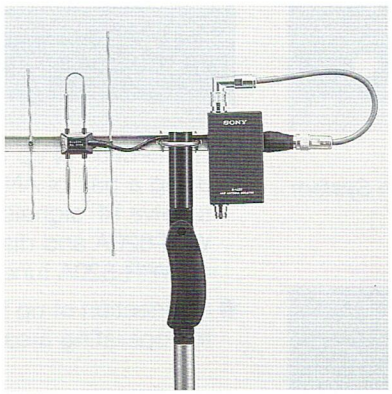
Tuner Base unit

K-1234

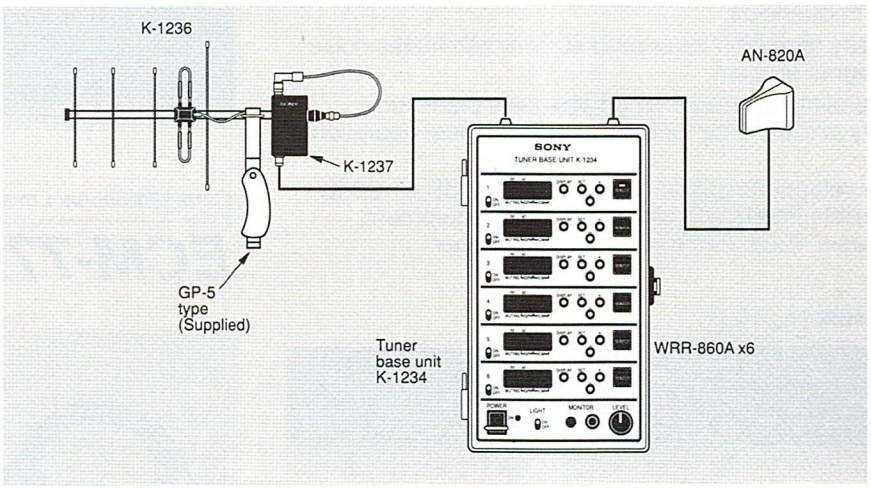
- **Easy installation and operation**
  Up to six units of the WRR-860 can easily plug into the K-1234. An LCD display and the channel switches of the K-1234 front panel provide the same operation information as the WRR-860A.
- **Suitable for outside shooting**
  Accommodates up to six WRR-860a tuners,composing a portable six wireless-channels diversity reception system in one unit. This is ideal for outside shooting in ENG and EFP applications.
- **Switching LINE/MIC output level**
  Audio output level is switchable from LINE (-20dBm) and MIC (-58dBm).
- **Built-in Antenna divider**
  Incorporates an antenna divider. When using a pair of AN-820 antennas, the K-1234 can receive RF signals from transmitters and distribute them to up to six WRR-860A tuners in the K-1234.
- **Equipped with cascade output connectors**
- **AC 100V to 120V and 220V to 240V / DC 12V Two-way power requirement system**
- **Power supply for the K-1237 booster**
- **Two way powering of two AA-size (LR-6) alkaline batteries**
  Provides approximately six hours of continuous operation or external DC 10V to 14V.

UHF Antenna/Antenna Booster

K-1236/K-1237



- **K-1234/1236/1237 Application**



Specifications

Model	WRT-810A	WRT-820A	WRT-830A
Crystal	794MHz-806MHz 94 channels, selectable	794MHz-806MHz 94 channels, selectable	794MHz-806MHz 94 channels, selectable
Oscillator	Crystal-controlled PLL synthesizer	Crystal-controlled PLL synthesizer	Crystal-controlled PLL synthesizer
Tone signal	Appox. 32kHz (for tone squelch control)	Appox. 32kHz (for tone squelch control)	Appox. 32kHz (for tone squelch control)
Type of emission	110KF3E	110KF3E	110KF3E
RF power output	10mW or 2.5mW, selectable	10mW	10mW or 2.5mW, selectable
Frequency stability	Within ±0.005%	Within ±0.005%	Within ±0.005%
Antenna	1/4 whip antenna	1/4 whip antenna	1/4 whip antenna
Pre-emphasis	50μs	50μs	50μs
Reference deviation	±5kHz	±5kHz	±5kHz
Maximum deviation	±40kHz	±40kHz	±40kHz
Frequency response	100Hz~13,000Hz	100Hz~15,000Hz	70Hz~15,000Hz
Signal-to-noise ratio	60dB (A-weighted)	60dB (A-weighted)	60dB (A-weighted)
Modulation distortion	1.5%	1.0%	–
Attenuator adjustment range	21dB, variable in 3dB steps	21dB, variable in 3dB steps	21dB, variable in 3dB steps
Max. input sound pressure level	151dB SPL	–	142dB SPL
Reference input level	–	-60dBV	–
Microphone capsule	Dynamic	–	Electret condenser
Max. input level	–	-3dbV	–
Directivity	Uni-directional	–	Uni-directional
Operating voltage	3V, LR6 AA size alkaline battery (x2)	3V, LR6 AA size alkaline battery (x2)	3V, LR6 AA size alkaline battery (x2)
Power consumption	170mA	170mA	170mA
Battery life	Approx. 8 hours w/LR6 alkaline batteries	Approx. 8 hours w/LR6 alkaline batteries	Approx. 8 hours w/LR6 alkaline batteries
Dimensions	ø48 x 238mm (ø1 15/16 x 9 3/8 inches)	63(W) x 103(H) x 17(D)mm (2 1/2 x 4 1/8 x 11/16 inches)	ø48 x 238mm (ø1 15/16 x 9 3/8 inches)
Weight	Approx. 300g (11 oz) w/batteries	Approx. 165g (6 oz) w/batteries	Approx. 300g (11 oz) w/batteries
Supplied accessories	Microphone holder, Stand adaptor	Leatherette case	Microphone holder, Stand adaptor

Specifications

Model	WRT-860A	WRT-867A
Crystal	–	794MHz-806MHz 94 channels, selectable
Oscillator	Crystal-controlled PLL synthesizer	Crystal-controlled PLL synthesizer
Tone signal	Appox. 32kHz (for tone squelch control)	Approx. 32kHz (for tone squelch control)
Type of emission	110KF3E	110KF3E
RF power output	20mW	10mW
Frequency stability	–	Within ±0.005%
Antenna	1/4 whip antenna, BNC-R type connector	Helical
Pre-emphasis	50μs	50μs
Reference deviation	±5kHz	±5kHz
Maximum deviation	±40kHz	–
Frequency response	70Hz~15,000Hz	50Hz~15,000Hz
Signal-to-noise ratio	>60dB (A-weighted)	>60dB (A-weighted)
Modulation distortion	Less than 1.0%	–
Attenuator adjustment range	0 to 30dB in 3dB steps	–
Max. input sound pressure level	+6dBV	142dB SPL (w/ 12dB attenuator)
Reference input level	-60dBV	–
Microphone capsule	–	Dynamic
Max. input level	+6dBV	–
Directivity	–	Uni-directional
Operating voltage	3V, LR6 AA size alkaline battery (x2)	1.5V, LR6 AA size alkaline battery (x1)
Power consumption	185mA	Less than 200mA (at 1.5V)
Battery life	Approx. 6 hours w/two LR6 alkaline batteries	Approx. 4 hours at 25˚C w/LR6 akaline batt.(x1)
Dimensions	ø63 x 168 x 17mm (ø2 1/2 x 6 5/8 x 11/16 inches)	ø51 x 195mm
Weight	Approx. 155g (5.5 oz) w/batteries	320g w/battery
Supplied accessories	Leatherette case, Spare battery case, Cable	Microphone holder, Stand adaptor

Specifications

Model	WRR-820A/WRR-840A	WRR-860A	WRR-810A
Receiving frequency	794MHz~806MHz 94 channels, selectable	794MHz~806MHz 94 channels, selectable	794MHz~806MHz 94 channels, selectable
Oscillator	Crystal-controlled PLL synthesizer	Crystal-controlled PLL synthesizer	Crystal-controlled PLL synthesizer
Type of reception	110KF3E	110KF3E	110KF3E
De-emphasis	50μs	50μs	50μs
Reference deviation	±5kHz	±5kHz	±5.0kHz
Maximum deviation	—	±40kHz	±40kHz
Spurious rejection	60dB	More than 60dB	More than 50dB
Frequency response	100Hz~15,000Hz	100Hz~15,000Hz	100Hz~15,000Hz
Signal-to-noise ratio	60dB (A-weighted)	More than 60dB (A-weighted)	More than 60dB (A-weighted)
Harmonic distortion	Less than 1.0% at 1kHz	Less than 1.0% at 1kHz	Less than 1.0% at 1kHz
Dynamic range	More than 96dB	—	—
Selectivity	More than 50dB	More than 60dB	More than 60dB
Audio output level	-20dB, -40dB or -60dB, selectable	-58dBu	-58dBu
Audio output connector	XLR-3-32 type (-20dB, -40dB or -60dB output) Phono type (for -20dB or -40dB output)	XLR-3-12C type	SMC9-4S
Antenna connector	—	BNC-R connector	BNC-R connector
Power requirements	AC 120V, 60Hz	—	—
Power consumption	WRR-820A; 12W + outlet 300W max. WRR-840A; 20W + outlet 300W max.	—	—
Operating voltage	—	6.0V, LR6 AA size alkaline batteries (x4)	3.0V, LR6 AA size alkaline batteries (x2)
Current consumption	—	190mA	180mA
Dimensions	482(W) x 44(H) x 300(D)mm	95(W) x 108(H) x 33(D)mm	63(W) x 120(H) x 17(D)mm
	(19 x1¾ x 11⅞ inches)	(3¾ x 4⅜ x 1⁵⁄₁₆ inches)	(2½ x 4¾ x 1¹⁄₁₆ inches)
Weight	WRR-820A; Approx. 4.9 kg (10 lb 13 oz) WRR-840A; Approx. 5.4 kg (11 lb 15 oz)	Approx. 500g (1 lb 1.6 oz) w/batteries	Approx. 220g (7 oz) w/batteries
Supplied accessories	—	Attachment case for Betacam® Camcorder Holder kit for Betacam® Camcorder Antenna (x2), Earphone, Battery case (spare), DC cable, Shoulder Belt	Antenna 1/4 whip, output cable, earphone Holder kit for Betacam® camcorder Attachment case for Betacam® camcorder

NOTE: The WRR-860A and WRR-810A Covers TV channels 68 and 69 frequency allocations.

Desired Number of W/L Frequencies VS Required Units of Each Models

Desired Number of W/L Frequencies	Vacant TV Channels to Be Used						Group Name	Required Units of WRT-867A/830A/820A/810A*			Required Units of WRR-820A			Required Units of WRR-840A			Required WO-820A
	64	65	66	67	68	69		(64)	(66)	(68)	(64)	(66)	(68)	(64)	(66)	(68)	
8					●		13			8						4	1
						●	12			8						4	
			●				13		8						4		
				●			12		8						4		
	●						13	8						4			
		●					12	8						4			
11					●	●	11			11			1			5	2
			●	●					11						5		
	●	●						11				1		5			
	●		●		●		A3	1	3	7	1	1	1		1	3	
		●		●		●	A2	1	3	7	1	1	1		1	3	
	●		●		●		A3	3	1	7	1	1	1	1		3	
		●		●		●	A2	3	1	7	1	1	1	1		3	
12	●		●		●		A3	2	3	7		1	1	1	1	3	
		●		●		●	A2	2	3	7		1	1	1	1	3	
			●	●	●	●	A1		4	8					2	4	
	●	●			●	●		4		8				2		4	
13	●		●		●		A3	3	3	7		1	1	1	1	3	
		●		●		●	A2	3	3	7		1	1	1	1	3	
			●	●	●	●	A1		5	8		1			2	4	
	●	●			●	●		5		8	1			2		4	
14			●	●	●	●	A1		6	8					3	4	3
15		●	●	●	●	●		1	6	8	1				3	4	
16		●	●	●	●	●		2	6	8				1	3	4	
17	●	●	●	●	●	●		3	6	8	1			1	3	4	
18	●	●	●	●	●	●		4	6	8				2	3	4	
19	●	●	●	●	●	●		5	6	8	1			2	3	4	

* The WRT-867A and WRT-830A have (68) version only

Transmitting Systems

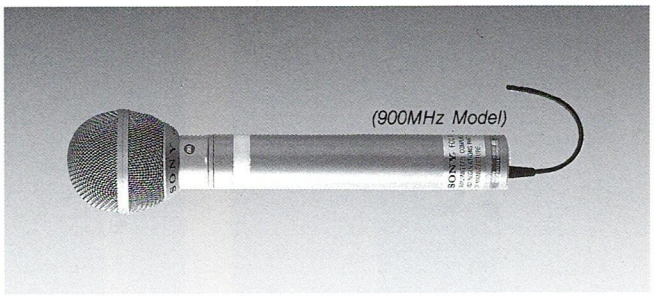
UHF Wireless Microphone

WRT-67

- Uni-directional, dynamic capsule
- Available for operation in either 400 or 900MHz band
- 3-position audio attenuator: 0dB/-10dB/-25dB
- AA-size battery operation

UHF Wireless Microphone

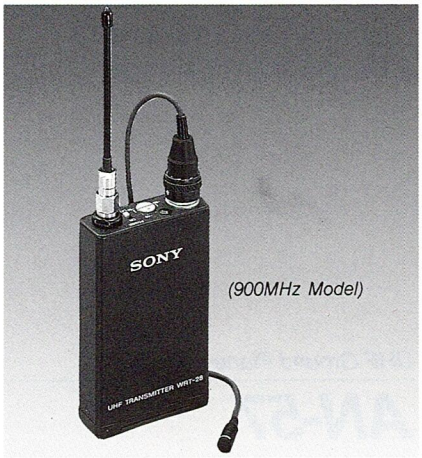
WRT-57



- Uni-directional, electret condenser capsule
- Available for operation in either 400 or 900MHz band
- Outstanding dynamic range and transmitter frequency stability

UHF Transmitter

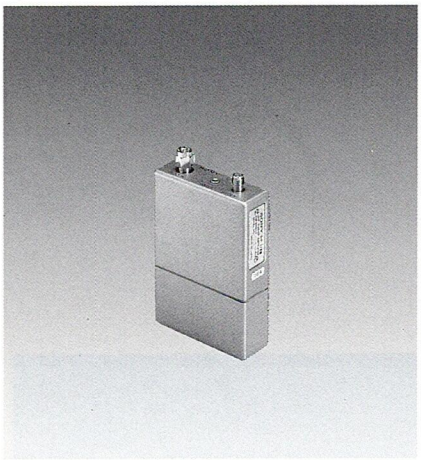
WRT-28



- Compact and lightweight transmitter
- Operation in 902MHz to 952MHz (WRT-28H) or 470MHz to 860MHz (WRT-28M/28L (AE) /28L) band
- Switchable linear/compander mode (compatible with conventional receivers in linear mode)
- Dimensions:
  50 (W) x 90 (H) x 17 (D) mm
  (2 x 3 5/8 x 11/16 inches)
- Weight: 130g (4.6 oz)

UHF Power Amplifier

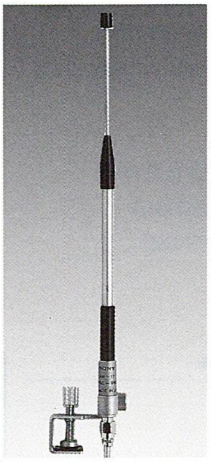
WP-27*



- Compact power amplifier for boosting WRT-28H
- Operates in 900MHz band
- Dimensions:
  59 (W) x 98 (H) x 20 (D) mm
  (2 3/8 x 3 7/8 x 13/16 inches)
- Weight: 220g (7.8 oz)

UHF Sleeve Antenna

AN-17*



- Slim, lightweight antenna for use with WRT-28H and WP-27
- ø10 x 222 (L) mm
  (ø 13/32 x 8 3/4 inches)

Power Adaptor

AD-27*

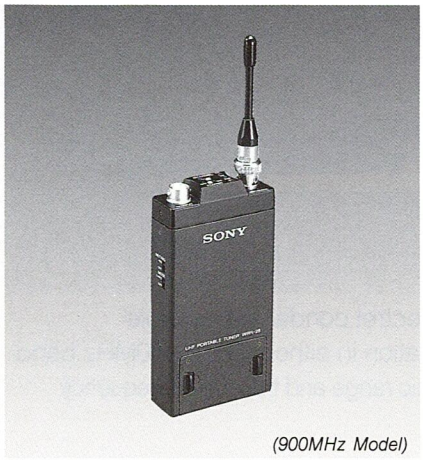
- Supplies power to WRT-28H and WP-27 from external 12V DC source

* *These units combine with WRT-28H to form a complete, high power system, operating in the 900MHz band powered by an external 12V DC power source.*

Receiving Systems

UHF Portable Tuner

WRR-28

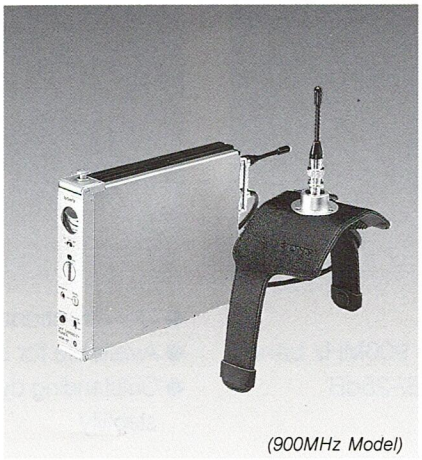


(900MHz Model)

- Operation in 902MHz to 952MHz (WRR-28H) or 470MHz to 860MHz (WRR-28M/28L (AE) /28L) band
- Easy mounting on Betacam using supplied attachment kit
- Switchable linear/compander mode (compatible with conventional transmitters and wireless microphones in linear mode)
- Dimensions:
  64 (W) x 12 (H) x 23 (D) mm
  (2 5/8 x 4 7/8 x 29/32 inches)
- Weight: 280g (9 lb 9 oz)

UHF Diversity Tuner

WRR-37

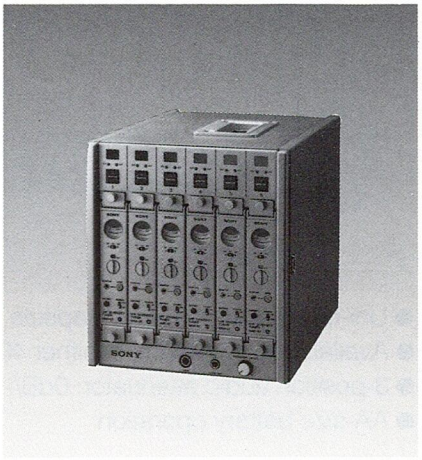


(900MHz Model)

- Dual tuner for diversity reception on 400 or 900MHz band
- Whip and shoulder antennas supplied
- Dimensions:
  35 (W) x 172 (H) x 203 (D) mm
  (1 7/16 x 6 7/8 x 8 inches)
- Weight: 1.35kg (3 lb) w/batteries

Portable Base Unit

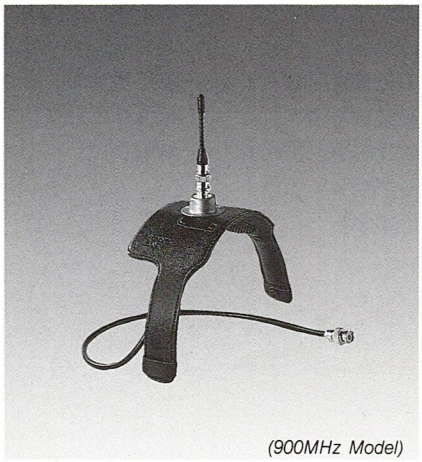
PB-36



- Holds up to six WRR-37 receivers for multi-channel diversity reception
- Provides power, audio and antenna connections to receivers
- Built-in antenna divider
- Dimensions:
  258 (W) x 273 (H) x 338 (D) mm
  (10 1/4 x 10 7/8 x 13 3/8 inches)
- Weight: 9kg (19 lb 14 oz)

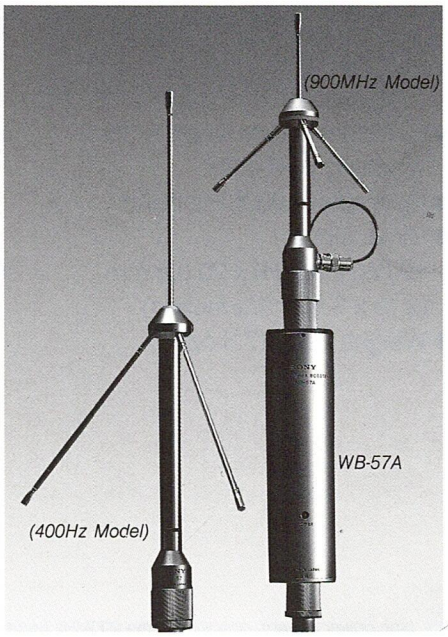
UHF Shoulder Antenna

AN-27



(900MHz Model)

- Optional shoulder antenna for use with WRR-37



UHF Ground Plane Antenna

AN-57

- Folding elements to save storage space
- Omni-directional for wide service area

UHF Antenna Booster

WB-57A

- Low noise booster
- 18dB gain (400MHz band)/20dB gain (900MHz band)

Optional Accessories

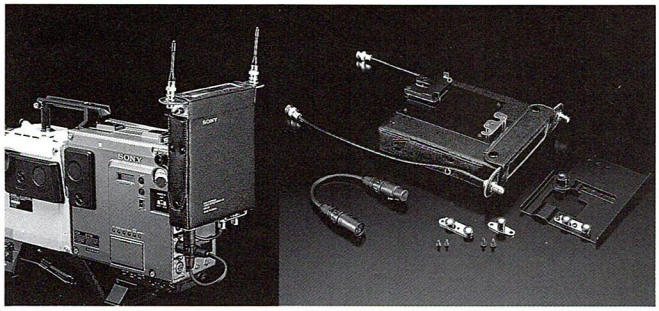
SC-37 Carrying Case

- Encases UHF transmitter, WRR-37 and accessories
- Dimensions: 390 (W) x 300 (H) x 96 (D) mm (15 3/8 x 11 7/8 x 3 7/8 inches)
- Weight: 2.5kg (5 lb 8 oz)

SC-38 Carrying case

- Encases WRT-28, WRR-28 and accessories
- Dimensions: 305(W) x 206(H) x 90(D)mm (12 1/8 x 8 1/8 x 3 5/8 inches)
- Weight: 1.5kg (3 lb 5 oz)

BTA-37 UHF Diversity Tuner Attachment Kit



- Leatherette case with accessories to allow a WRR-37 receiver to be mounted on Betacam series Camcorders including BVW-507A /570IS/200/300A/400

Batteries

Applicable Equipment	Manufacturer	Model	Type	NEDA No.	IEC No.	Voltage	Q'ty
WRT-28	Sony	AM3	Alkaline	15A	LR-6	1.5V	2
WRT-57	Sony	7MR9	Mercury		7MR9	9.45V	1
	Eveready	E177	Mercury	1606M		9.8V	1
	Burgess	H177	Mercury	1606M		9.8V	1
	Mallory	TR177	Mercury	1606M		9.8V	1
	RCA	VS177	Mercury	1606M		9.8V	1
	Ray-O-Vac	T177	Mercury	1606M		9.8V	1
WRT-67	Sony	AM3	Alkaline	15A	LR-6	1.5V	1
WRR-28	Sony	AM3	Alkaline	15A	LR-6	1.5V	2
WRR-37	Sony	AM3	Alkaline	15A	LR-6	1.5V	6

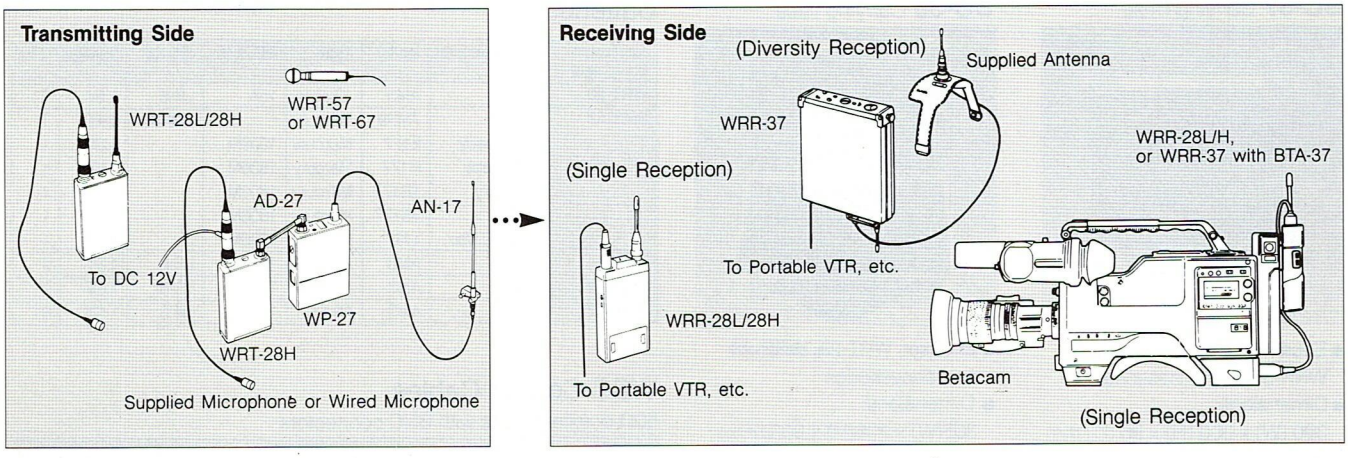
WBC Coaxial Cables

50Ω coaxial cables with BNC connectors

MODEL	Length (m)	Connector (x 2)	Cable (50 Ω)	Loss (dB)		Weight (grams)
				500MHz	1000MHz	
WBC-0.6B-P	0.6	BNC-P (UG-88/U)	RG-58A/U			70
WBC-10B-5P	10	BNC-P-5	5D-2V	2.2	3.5	800
WBC-20B-5P	20	BNC-P-5	5D-2V	4.4	7.0	1600
WBC-30B-5P	30	BNC-P-5	5D-2V	6.6	10.5	2400
WBC-50B-5P	50	BNC-P-5	5D-2V	11.0	17.5	4000

System Applications

1. Portable Systems



(1) 1-Channel Portable System

WRT-28H/28L	UHF Transmitter	1
(or WRT-57/67	UHF Wireless Microphone	1)
AN-27	UHF Shoulder Antenna	1
WRR-28H/28L	UHF Portable Tuner	1
SC-37	Carrying Case	1

(2) Portable Diversity System

WRT-28H/28L	UHF Transmitter	1
(or WRT-57/67	UHF Wireless Microphone	1)
WRR-37	UHF Diversity Tuner	1
SC-37	Carrying Case	1

(3) 900MHz Band 500mW Transmitting System

WRT-28H	UHF Transmitter	1
WP-27	UHF Power Amplifier	1
AD-27	Power Adaptor	1
AN-17	UHF Sleeve Antenna	1

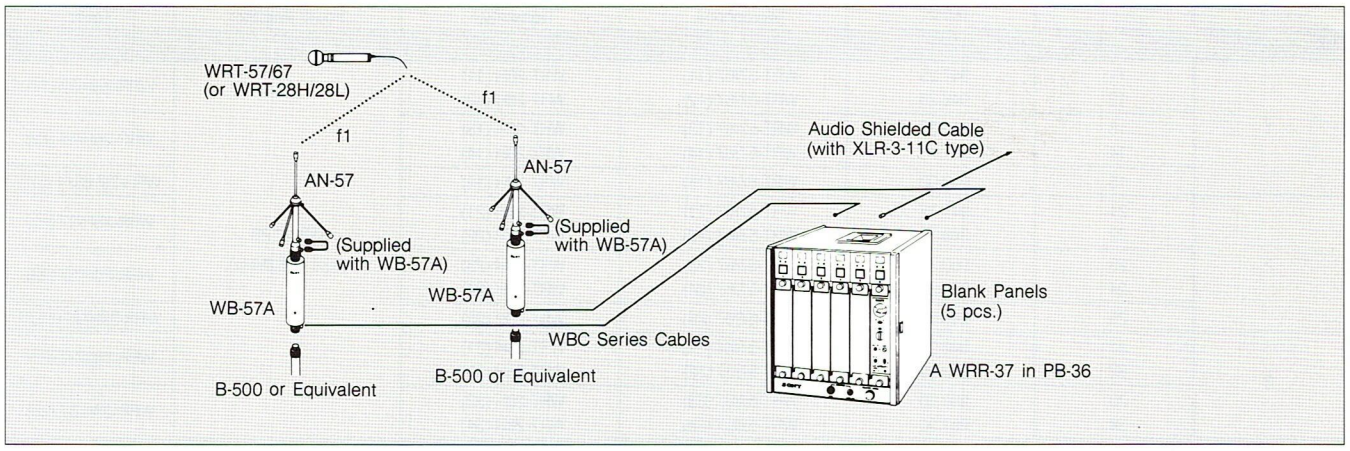
Note: ①When WP-27 is used, WRT-28H must be operated not on the built-in battery but on a DC 12V external power supply.
②The 500mW transmitting system is available only for operation in the 900MHz band.

(4) Portable Audio/Video System

WRT-28H/28L	UHF Transmitter	1
(or WRT-57/67	UHF Wireless Microphone	1)
WRR-28H/28L	UHF Portable Tuner	1
(or WRR-37	UHF Diversity Tuner	1)
BTA-37	UHF Diversity Tuner Attachment Kit	1
BVW-507A/570IS/200/300A/400 Series Betacam		1

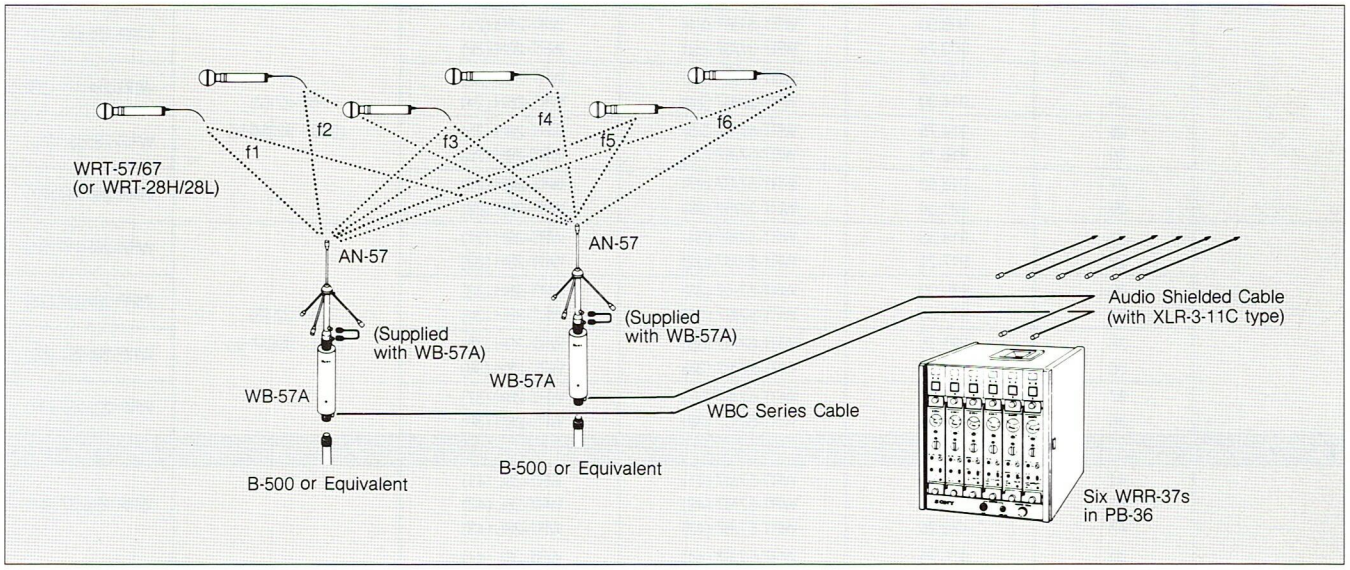
Note: BTA-37 is necessary when attaching the WRR-37 to Betacam.

2. Studio Systems



(1)1-Channel Diversity Reception

WRT-57/67	UHF Wireless Microphone 1	PB-36	Portable Base Unit 1
(or WRT-28H/28L	UHF Transmitter .....1)	AN-57	UHF Ground Plane Antenna.....2
WRR-37	UHF Diversity Tuner 1	WB-57A	UHF Antenna Booster 2
		WBC-10B-5P	Coaxial Cable.....2



(2) 6-Channel Diversity Reception

WRT-57/67	UHF Wireless Microphone 6	PB-36	Portable Base Unit 1
(or WRT-28H/28L	UHF Transmitter .....6)	AN-57	UHF Ground Plane Antenna.....2
WRR-37	UHF Diversity Tuner 6	WB-57A	UHF Antenna Booster 2
		WBC-10B-5P	Coaxial Cable.....2

Note: ① In multi-channel operation, each transmitter/tuner combination must operate on a frequency different from others used in the same system. Refer to the channel allocation chart on the next page.

② Two to five channel diversity reception can be achieved simply by installing the WRR-37s corresponding to the number of channels in the PB-36.

Channel Allocations

Group No.	Channel No.	Frequency (MHz)	Portable System			
			Microphone	Transmitter	Power Amplifier	Tuner
USA *1						
1	11	947.25	WRT-57/67 (11)	WRT-28H (11)	WP-27 (5) (938 – 952MHz)	WRR-28H/37 (11)
	12	948.25	WRT-57/67 (12)	WRT-28H (12)		
	13	950.25	WRT-57/67 (13)	WRT-28H (13)		WRR-28H/37 (13)
	14	951.75	WRT-57/67 (14)	WRT-28H (14)		
	15	949.00	WRT-57/67 (15)	WRT-28H (15)		WRR-28H/37 (15)*3
2	21	947.75	WRT-57/67 (21)	WRT-28H (21)		WRR-28H/37 (21)
	22	949.75	WRT-57/67 (22)	WRT-28H (22)		
	23	950.75	WRT-57/67 (23)	WRT-28H (23)		WRR-28H/37 (23)
	24	951.25	WRT-57/67 (24)	WRT-28H (24)		
	25	948.50	WRT-57/67 (25)	WRT-28H (25)		WRR-28H/37 (15)*3
3	31	949.25	WRT-57/67 (31)	WRT-28H (31)		WRR-28H/37 (31)
	32	948.75	WRT-57/37 (32)	WRT-28H (32)		
	33	950.00	WRT-57/67 (33)	WRT-28H (33)		WRR-28H/37 (33)
	34	951.50	WRT-57/67 (34)	WRT-28H (34)		
CANADA/AUSTRALIA *1						
1	11	902.75	WRT-57/67 (11)	WRT-28H (11)	WP-27 (1) (902 –916MHz)	WRR-28H/37 (11)
	12	904.00	WRT-57/67 (12)	WRT-28H (12)		
	13	905.00	WRT-57/67 (13)	WRT-28H (13)		WRR-28H/37 (13)
	14	908.25	WRT-57/67 (14)	WRT-28H (14)		
	15	909.00	WRT-57/67 (15)	WRT-28H (15)		WRR-28H/37 (15)
	16	911.00	WRT-57/67 (16)	WRT-28H (16)		
	17	912.75	WRT-57/67 (17)	WRT-28H (17)		WRR-28H/37 (17)
	18	915.75	WRT-57/67 (18)	WRT-28H (18)		
2	21	908.50	WRT-57/67 (21)	WRT-28H (21)	WP-27 (2) (908 – 922MHz)	WRR-28H/37 (21)
	22	909.75	WRT-57/67 (22)	WRT-28H (22)		
	23	910.75	WRT-57/67 (23)	WRT-28H (23)		WRR-28H/37 (23)
	24	914.00	WRT-57/67 (24)	WRT-28H (24)		
	25	914.75	WRT-57/67 (25)	WRT-28H (25)		WRR-28H/37 (25)
	26	916.75	WRT-57/67 (26)	WRT-28H (26)		
	27	918.50	WRT-57/67 (27)	WRT-28H (27)		WRR-28H/37 (27)
	28	921.50	WRT-57/67 (28)	WRT-28H (28)		
3	31	914.25	WRT-57/67 (31)	WRT-28H (31)	WP-27 (3) (914 – 928MHz)	WRR-28H/37 (31)
	32	917.25	WRT-57/67 (32)	WRT-28H (32)		
	33	919.00	WRT-57/67 (33)	WRT-28H (33)		WRR-28H/37 (33)
	34	921.00	WRT-57/67 (34)	WRT-28H (34)		
	35	921.75	WRT-57/67 (35)	WRT-28H (35)		WRR-28H/37 (35)
	36	925.00	WRT-57/67 (36)	WRT-28H (36)		
	37	926.00	WRT-57/67 (37)	WRT-28H (37)		WRR-28H/37 (37)
	38	927.25	WRT-57/67 (38)	WRT-28H (38)		
E *2						
	41	470.40	WRT-57/67 (41)	WRT-28L (41)		WRR-28L/37 (41)
	42	471.50	WRT-57/67 (42)	WRT-28L (42)		
	43	472.25	WRT-57/67 (43)	WRT-28L (43)		
	44	476.75	WRT-57/67 (44)	WRT-28L (44)		WRR-28L/37 (44)
	45	477.75	WRT-57/67 (45)	WRT-28L (45)		
	46	478.90	WRT-57/67 (46)	WRT-28L (46)		
	47	481.75	WRT-57/67 (47)	WRT-28L (47)		WRR-28L/37 (47)
	48	482.50	WRT-57/67 (48)	WRT-28L (48)		
	49	484.25	WRT-57/67 (49)	WRT-28L (49)		
	50	485.75	WRT-57/67 (50)	WRT-28L (50)		WRR-28L/37 (50)
	51	487.00	WRT-57/67 (51)	WRT-28L (51)		
	52	488.00	WRT-57/67 (52)	WRT-28L (52)		

● *Refer to the supplement to the Wireless Microphone Systems brochure for channel allocations of WRT-28M/28L(AE) and WRR-28M/28L(AE).*

*1 *Any combination of units in the same group can be used simultaneously at the same place. When using units belonging to different groups, they must be at least 100m apart from each other or must be shielded.*

*2 *Any combination of units and channels can be used at the same place.*

*3 *WRR-28H/WRR-37(15) can receive both channels 15 and 25.*

SECTION 13

Professional Headphones

MDR-7500 Series 13-1

Professional Headphones

MDR-7500 Series

MDR-7506

- Rugged Design – Proven to be reliable in the toughest situations
- Folding Construction – Compactness in storage
- 40mm Driver Unit – For clear, high quality sound reproduction
- Closed-Ear Design - Comfort and reduction of external noise interference
- Stereo Unimatch Plug – 1/4" and 1/8" applications
- Gold Connectors and OFC Cord – Reliable and stable signal connection and transmission
- Frequency Response – 10Hz to 20kHz
- Supplied Soft Case – Protective storage

MDR-7504

- Folding Construction – Compactness in storage
- 30mm Driver Unit – For clear, high quality sound reproduction
- Closed Ear Design – Comfort and reduction of external noise interference
- Stereo Unimatch Plug – 1/4" and 1/8" applications
- Gold Connectors and OFC Cord – Reliable and stable signal connection and transmission
- Frequency Response – 15Hz to 18kHz
- Supplied Soft Case – Protective storage

MDR-7502

- Cost Effective – Quality sound at a reasonable price
- 30mm Driver Unit – For clear, high quality sound reproduction
- Closed-Ear Design – Comfort and reduction of external noise interference
- Stereo Unimatch Plug – 1/4" and 1/8" applications
- Gold Connectors and OFC Cord – Reliable and stable signal connection and transmission
- Frequency Response – 60Hz to 16kHz

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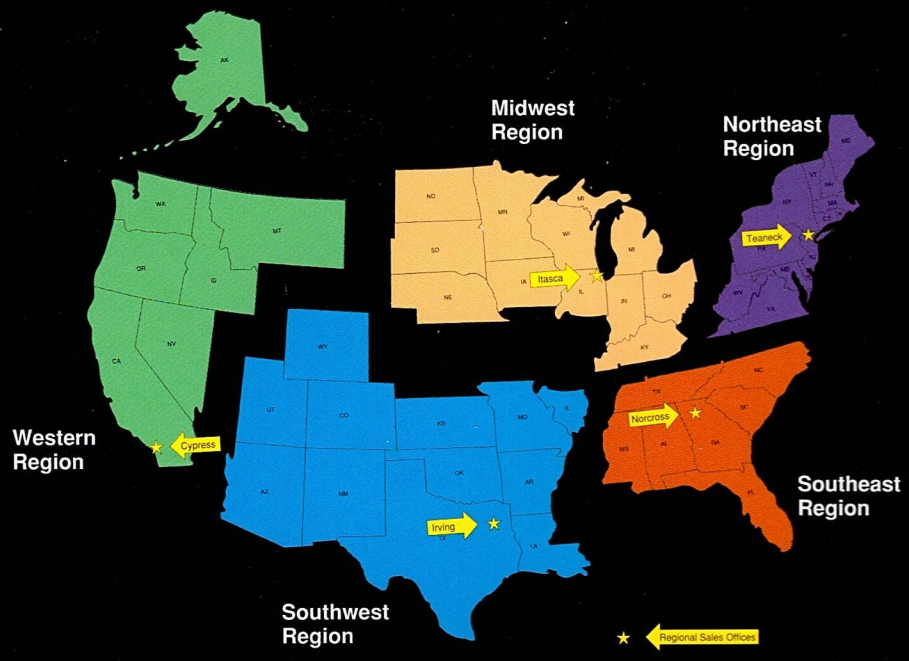

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